

**APPENDIX A**

**Summary of Major Investigations and  
Regulatory Actions at Landfill 26**

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The following is a chronological list of previous investigations and soil and groundwater remedial actions conducted at Landfill 26:

### **1985**

Landfill 26 and surrounding areas were included as part of a confirmation study of the surface and subsurface conditions of the General Service Administration (GSA) Phase I and II Sale Areas. The study reported the presence of trace levels of metals and priority pollutants.

In 1985/1986 the Army installed groundwater monitoring wells and implemented a groundwater and surface water monitoring program as part of a site investigation and feasibility study conducted at Landfill 26 (ITSI, 2000b).

### **1986**

Woodward-Clyde Consultants (WCC) conducted a preliminary investigation that included a methane study. The investigation concluded that Landfill 26 was nonmethanogenic and the refuse zone (RZ) was in a state of near-continuous saturation. Four primary horizons were characterized, and groundwater-level fluctuations were recorded and correlated with seasonal changes in precipitation. The investigation also included detailed topographic and geophysical surveys, base map preparation, soil borings, groundwater monitoring wells, trenching operations, and sampling of soils and groundwater. The investigation also identified an area of oily sludge and detections of several organic and inorganic constituents that warranted further investigation (WCC, 1997).

As part of the 1986 investigation, a preliminary assessment was conducted according to USEPA guidelines. The assessment concluded that none of the contaminants previously identified should present a significant threat to human health by inhalation or dermal contact. The assessment also concluded that groundwater contaminants did not present a significant threat to humans because groundwater from Landfill 26 was not being used, and would probably never be used, as drinking water. However, since Landfill 26 and the surrounding suspected landfills were included in the parcel offered for sale by the GSA, it was reasonable to assume that the land and groundwater usage could change. Therefore, the USACE was required to complete a Remedial Investigation/Feasibility Study (RI/FS) and prepare a remedial plan to properly close Landfill 26 (WCC, 1997).

### **1987**

WCC conducted and completed the Remedial Investigation (RI) to estimate the volume and extent of contamination and to conduct a Feasibility Study (FS). The RI reported approximately 151,500 cubic yards of refuse in Landfill 26; however, because the soil and fill contamination exceeded Landfill 26's aerial boundary, the volume of contaminated material

within Landfill 26 was estimated at approximately 233,000 cubic yards (based on preliminary cleanup criteria developed as part of the FS) (ITSI, 2000b).

#### **1988**

WCC completed the FS that evaluated the alternatives for groundwater and soil remediation at Landfill 26. The FS included both human health and environmental risk assessments, developed cleanup criteria for remediation of contaminated groundwater and soil, and presented detailed analysis and evaluation of various remedial alternatives for groundwater and soil (WCC, 1997).

A preliminary assessment of the site remediation criteria revealed that compliance with applicable and relevant and appropriate requirements (ARARs) for the site would govern the selection of alternatives because the site contains solid waste, which must be managed in accordance with the requirements of California regulations (WCC, 1997).

The health risk assessment was considered to be a “worst-case” analysis and suggested that chronic exposures (via ingestion) of deposited airborne dust emitted from Landfill 26 may represent significant risk to persons who were currently living and working at HAAF. USACE later re-evaluated the risks to human health under the existing land-use scenario using a dispersion model that they felt more closely represented the actual conditions at HAAF. This re-evaluation concluded that the risk associated with exposure to airborne dust would be insignificant under the existing land use scenario (WCC, 1997).

#### **1989**

On August 11, a Record of Decision (ROD) for Landfill 26 was signed that included eight remedial alternatives for soil and groundwater remediation. The ROD described the selected remedial alternative, based on the FS conducted in 1988. Chemical fixation and Class II closure with a variance was selected as the proposed remedy. This ROD was subsequently overturned in 1992; the explanation for the change in the remedial alternative is documented in the Explanation of Significant Differences (ESD) described below (WCC, 1997).

#### **1990**

Sirrine Environmental Consultants began a 1-year assessment of the groundwater, surface water, and surface sediment quality in the vicinity of Landfill 26. The objective was to evaluate the effect of Landfill 26 on water and sediment quality (WCC, 1997).

Sirrine concluded that the presence of Landfill 26 had an impact on groundwater and possibly surface water and sediments. Impacts on surface water and sediments could not, however be fully assessed with the limited data for groundwater sources to surface water that were not associated with Landfill 26. Due to the presence of contaminants, particularly petroleum hydrocarbons, in background groundwater monitoring wells and in hydraulically upgradient surface water and sediments, Sirrine concluded that it was not possible to determine the impacts to groundwater and surface water that could be solely attributed to Landfill 26 (WCC, 1997).

#### **1991**

During remediation predesign stages at the site, additional soil and groundwater data were gathered that more accurately characterized the site and clarified some ambiguities in the selected remedy. The remedy was based on the premise that Landfill 26 contains high levels

of contaminants throughout. The additional studies suggested that contamination within Landfill 26 was restricted to a number of small “hot spots.” The USACE noted that accurately locating these areas for solidification was no longer necessary if an upgraded RCRA-type cap was placed on Landfill 26. The upgraded cap would substantially diminish the possibility of exposure to the waste in Landfill 26. The modified remedy would provide a more effective cap on Landfill 26 and extraction and treatment of groundwater.

#### **1992**

The USACE prepared an ESD to describe the differences between the remedy selected in the ROD and the proposed changes to that remedy (WCC, 1997). The ESD proposed capping of the landfill and groundwater extraction/treatment, and was signed in 1992 (ITSI, 2000b).

The Regional Water Quality Control Board (RWQCB) issued a Waste Discharge Requirement (WDR) #92-029 that required quarterly groundwater monitoring and closure of the landfill. This WDR also confirmed the remedy proposed by the Army in the ESD (ITSI, 2000b).

Quadrel Services conducted a methane survey of Landfill 26 from September 14 to September 18. The goal of this investigation was to quantify the amount of methane being generated at Landfill 26, and to further delineate Landfill 26’s boundaries. This investigation was completed prior to the installation of the final landfill cap.

#### **1993**

The USACE installed six landfill gas monitoring probes to a total depth of 15 bgs within Landfill 26 in November or December. Landfill gas sampling was conducted on January 20 and March 24, 1994.

USACE Omaha District proposed a groundwater monitoring and analytical program. The RWQCB provided guidance on specific analytical methods to use in the monitoring program. Quarterly groundwater monitoring was initiated under WDR #92-029. USACE Sacramento District contracted WCC to conduct seven rounds of quarterly sampling beginning in December 1993 (ITSI, 2000b).

#### **1994**

As part of landfill closure, Clark & Witham, Inc. installed a total of 23 gas monitoring probes (GMP-1 through GMP-23) in two phases, one in May and one in July, around the perimeter of Landfill 26. The average spacing of the probes is approximately 200 feet, much closer than the 27 CCR 20925 requirement of 1,000 feet maximum.

Each gas monitoring probe was completed at a total depth of 12 feet belowgrade. The screened interval in each probe extends from 6 to 11 feet belowgrade, which corresponds approximately to the base of the landfill (ranging from 7 to 12 feet belowgrade). The probes’ gravel packs extend from 5 to 12 feet belowgrade and are overlain by 2 feet of bentonite pellets and 3 feet of neat-cement grout.

Landfill gas sampling was conducted on a monthly basis (beginning in August) for the first year after installation of the probes. The landfill gas samples were analyzed in the field for oxygen, nitrogen, carbon dioxide, methane, methylene chloride, and benzene using a portable gas chromatograph. A general summary of the landfill gas monitoring data is summarized in Appendix B.

Landfill cap and groundwater extraction system/hydraulic containment system construction began. Completion of the cap was postponed because of rain; construction was completed in 1995. During construction of the cap, 18 groundwater wells were abandoned, the casings of 10 wells were extended, and 2 damaged wells were repaired. A total of 14 groundwater extraction wells were installed to provide hydraulic containment (ITSI, 2000b).

#### **1995**

Landfill gas was collected and analyzed on a monthly basis continuing from the previous year, through September 1995 (see Appendix B). Landfill gas probes GMP-3 and GMP-5 were destroyed in May 1995 during construction around the Landfill 26 perimeter and were reinstalled in July 1995.

USACE Sacramento District proposed reductions in the groundwater monitoring program based on target analyte trends established from the initial 10 quarters of monitoring (ITSI, 2000b).

RWQCB issued WDR 95-188 requiring a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of treated groundwater to the local storm sewer system (ITSI, 2000b).

#### **1996**

Landfill gas was collected and analyzed one time in 1996 (see Appendix B). Other Landfill 26 activities are provided below.

USACE Sacramento District notified RWQCB that analysis of groundwater monitoring data indicated that target analytes had not migrated beyond the edge of the landfill. USACE Sacramento District proposed changes to the groundwater monitoring program, including the reduction of monitoring frequency to annually (from quarterly) and elimination of halogenated volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8010 and pesticides/polychlorinated biphenyls by EPA Method 8080 from the target analyte list (ITSI, 2000b). The RWQCB approved proposed changes to the groundwater monitoring program.

RWQCB and Department of Toxic Substance Control (DTSC) determined the need for a Summary Technical Report to facilitate their evaluation of USACE Sacramento District's proposal to forego groundwater extraction/treatment and reduce the scope of groundwater monitoring (ITSI, 2000b). The RWQCB issued WDR #96-113 requiring continued groundwater monitoring and preparation of the *Summary Technical Report* (WCC, 1997). The Technical Report would evaluate the need for hydraulic containment, propose the final closed landfill design, and perform statistical tests to determine the source(s) of groundwater contamination detected outside Landfill 26.

#### **1997**

The *Summary Technical Report* (WCC, 1997) was completed. This report includes extensive data on Landfill 26 from a broad range of studies and investigations performed since 1985. The *Summary Technical Report* concluded that hydraulic containment was not needed at that time and contamination detected in wells outside Landfill 26 originates from sources outside the landfill.

USACE Sacramento District investigated the GSA Phase II Sale Area around Landfill 26 (IT Corporation [IT], 1998a). This investigation noted that the source of halogenated volatile organic contamination on the west side of Landfill 26 originates from source(s) outside of Landfill 26.

#### 1998

The *Construction Quality Assurance (CQA) Report, Landfill 26 Phase II, Final Cover System* (CH2M HILL, 1998a) was prepared to summarize the construction, installation, and quality control activities employed during the construction of the Landfill 26 final cover system completed in 1995. This report documents that the Landfill 26 final cover system was consistent with the goals of the project plans and technical specifications.

As a result of the conclusions stated in the Summary Technical Report, the *Groundwater Treatment System Decommissioning Study* (CH2M HILL, 1998b) was conducted to decommission (“mothball”) the existing Landfill 26 treatment plant and extraction well system. Data from ongoing groundwater monitoring suggested that contaminants in Landfill 26 have not significantly impacted groundwater outside of the LF 26 boundary. The study presents the scope of work and specific procedures required to decommission the groundwater treatment plant at Landfill 26.

The *Perimeter Grading and Drainage Modifications Alternative Analysis* (CH2M HILL, 1998c) was prepared to evaluate three perimeter grading modifications options to improve drainage and access to the Landfill 26 top deck, and to repair erosion damage and a side slope seep. The original Landfill 26 design was based on a surface water drainage system that could be significantly altered by the proposed BRAC property development plan. Drainage adjustments were made to prevent flooding of Landfill 26 during a 100-year storm event. The grading/drainage alternative that was selected and implemented is discussed in detail in the CQA Report referenced below.

The Landfill 26 drainage control berm was constructed to protect the landfill from Pacheco Creek overflow during major flood events. Erosion damaged areas along the northwest edge of the landfill and seep areas near the north toe of the landfill were also repaired (CH2M HILL, 1998e).

The *CQA Report for Grading and Drainage Adjustments* (CH2M HILL, 1998e) was prepared to summarize the construction, installation, and quality control activities employed during the construction of the Landfill 26 grading and drainage improvements.

#### 1999

Landfill gas was collected and analyzed in September, October, and December (see Appendix B).

ITSI performed landfill gas sampling for September and December. Gas probes GMP-4 though GMP-13 were monitored during September; all gas probes that could be monitored were monitored during each of two sampling events in December. Some gas probes were unable to be monitored because of high groundwater levels (ITSI, 1999a).

Harding Lawson Associates (HLA) performed landfill gas sampling during two sampling events in October. HLA obtained field measurements of methane for GMP-4 through GMP-10. Methane was detected in GMP-5, GMP-8 and GMP-9; however, methane levels did not exceed the 5 percent by volume limit. HLA prepared “Preliminary Methane Sampling

Results at Landfill 26" — a memorandum for methane sampling performed on October 4 and 21. The memorandum provided methane results of direct-push soil gas samples collected adjacent to the gas monitoring probes (GMP-5, GMP-8, and GMP-9) and at various lateral distances from these probes (ITSI, 1999b).

USACE Sacramento District prepared the *Boring Log for New Landfill 26 Monitoring Well* (USACE, 1999), which documents the installation of a downgradient groundwater monitoring well (MW) MW-L26-1 to provide an additional downgradient monitoring point outside the edge of Landfill 26 (ITSI, 2000b) (see Appendix B).

The *Final Closure and Post-Closure Maintenance Plan* (CH2M HILL, 1999) was completed. The plan includes a groundwater analytical program focused only on known landfill contaminants of concern with samples collected on a yearly basis. The plan includes a landfill gas monitoring program to analyze for methane and other landfill gases on a yearly basis.

## 2000

The *December 1999 Landfill Gas Monitoring Report* (ITSI, 2000a) was completed. This report contains the results of gas probe monitoring and sampling under the landfill gas monitoring program, for which 23 gas probes were monitored and 20 were sampled during two monitoring events in December 1999 (see Appendix B).

In November, ITSI completed the *Draft September 2000, Landfill Monitoring Report for Landfill 26* (ITSI, 2000b). This report summarized monitoring activities and data for the annual groundwater, surface water, and landfill gas monitoring event.

## 2001

In January, ITSI completed the *HAAF Draft Landfill Gas Migration Study* (ITSI, 2001). The purpose of the study was to evaluate the presence, distribution, and migration of landfill gas along the eastern margin of Landfill 26. Significant additional gas monitoring was conducted for this study (see Appendix B).

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**APPENDIX B**

**Methane Data**

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**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
GMP-1	07/28/1995	0.22	21	79	0.097	1.94	<0.5	<0.5
	09/12/1995	1.8	19	79	0.008	0.16	<0.5	<0.5
	06/26/1996	0.55	20	80	0.0033	0.07	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	2.00	NS	NS
	12/07/1999	6.7	10	83	0.0026	NS	NS	NS
	12/28/1999	11	4.2	85	0.005	NS	NS	NS
	12/29/2000	NS	NS	NS	NS	4.00	NS	NS
GMP-2	07/28/1995	9	2.6	88	0.23	4.60	<0.5	<0.5
	09/12/1995	14	3.7	82	0.085	1.70	<0.5	<0.5
	06/26/1996	12	13	75	0.004	0.08	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	2.00	NS	NS
	12/28/1999	6.8	12	81	<0.0054	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	3.00	NS	NS
GMP-3	08/22/1994	0.036	21	79	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.035	22	77	<0.001	<0.02	<0.5	<0.005
	10/27/1994	0.028	21	78.6	<0.001	<0.02	<0.5	<0.5
	11/28/1994	0.036	21	79	<0.001	<0.02	<0.5	<0.5
	12/30/1994	0.017	19	81	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.029	23	77	<0.001	<0.02	<0.5	<0.5
	02/28/1995	0.044	21	79	<0.001	<0.02	<0.5	<0.5
	03/28/1995	0.039	22	78	<0.001	<0.02	<0.5	<0.5
	04/27/1995	0.038	20	80	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.048	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	5.7	17	76	1.5	30.00	<0.5	<0.5
	06/26/1996	0.47	18	81	0.019	0.38	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	2.0	NS	NS
	12/07/1999	7.2	13	80	<0.0010	NS	NS	NS
	12/28/1999	6.1	14	80	0.0089	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	2.0	NS	NS
GMP-4	07/28/1995	0.059	22	78	<0.001	<0.02	<0.5	<0.5
	09/12/1995	18	9.5	73	<0.001	<0.02	<0.5	<0.5
	06/26/1996	17	8	75	0.00022	0.0044	<0.5	<0.5

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Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
GMP-5	10/04/1999	NS	NS	NS	NS	NS	ND	NS
	12/02/1999	NS	NS	NS	NS	2.0	NS	NS
	12/07/1999	7.7	13	79	<0.0010	NS	NS	NS
	12/28/1999	6.1	14	80	<0.0054	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	3.0	NS	NS
GMP-5	08/22/1994	5.4	17	77	<0.001	<0.02	<0.5	<0.005
	10/10/1994	3.8	19	79	0.013	0.26	<0.5	<0.005
	10/27/1994	4.5	19	76	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.033	23	77	<0.001	<0.02	<0.5	<0.5
	03/28/1995	0.038	22	78	<0.001	<0.02	<0.5	<0.5
	04/27/1995	0.041	20	80	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.092	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	29	4	67	0.28	5.6	<0.5	<0.5
	06/26/1996	6.3	17	71	5.7	114.00	<0.5	<0.5
	09/01/1999	33.7	3.8	45.2	17.3	NS	0.2	<0.2
	10/04/1999	NS	NS	NS	NS	NS	0.002	NS
	10/21/1999	NS	NS	NS	NS	NS	ND	NS
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	17	4.3	79	0.027	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	07/28/2000	0.2	22	78	0.00062J	NS	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	09/08/2000	NS	NS	NS	NS	31.0	NS	NS
	09/11/2000	2.6	2.4	71	1	NS	<0.46	3.61
	10/12/2000	NS	NS	NS	NS	17.0	NS	NS
	10/13/2000	13	11	76	0.13	NS	NS	NS
	10/13/2000	21	4.6	74	0.028	NS	NS	NS
	11/02/2000	NS	NS	NS	NS	1.0	NS	NS
	11/27/2000	NS	NS	NS	NS	1.0	NS	NS

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<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
	11/28/2000	0.94	21	78	0.0055	NS	NS	NS
	12/14/2000	NS	NS	NS	NS	0.0	NS	NS
GMP-6	07/28/1995	0.053	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.055	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.047	19	81	<0.0001	<0.002	<0.5	<0.5
	09/01/1999	<0.1	17.2	82.8	<0.1	NS	0.2	<0.2
	10/04/1999	NS	NS	NS	NS	NS	ND	NS
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.11	19	81	<0.0010	NS	NS	NS
	12/28/1999	0.051	21	79	<0.0054	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	09/08/2000	NS	NS	NS	NS	0.0	NS	NS
	09/11/2000	0.19	22	78	0.00088J	NS	<0.42	0.42J
GMP-7	10/12/2000	NS	NS	NS	NS	0.0	NS	NS
	11/02/2000	NS	NS	NS	NS	0.0	NS	NS
	11/27/2000	NS	NS	NS	NS	0.0	NS	NS
	12/14/2000	NS	NS	NS	NS	1.0	NS	NS
	07/28/1995	0.056	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.32	19	81	0.003	0.06	<0.5	<0.5
	06/26/1996	0.049	19	81	<0.0001	<0.002	<0.5	<0.5
	09/01/1999	<0.1	16.6	83.4	<0.1	NS	0.2	<0.2
	10/04/1999	NS	NS	NS	NS	NS	ND	NS
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.083	18	82	0.0055	NS	NS	NS
	12/28/1999	0.1	20	80	<0.0054	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	2.0	NS	NS
	07/27/2000	NS	NS	NS	NS	1.0	NS	NS

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	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	08/29/2000	0.89	20	79	0.0005J	NS	NS	NS
	09/08/2000	NS	NS	NS	NS	1.0	NS	NS
	09/11/2000	0.94	20	79	0.00022J	NS	<0.46	0.65
	10/12/2000	NS	NS	NS	NS	0.0	NS	NS
	11/02/2000	NS	NS	NS	NS	1.0	NS	NS
	11/27/2000	NS	NS	NS	NS	0.0	NS	NS
	12/14/2000	NS	NS	NS	NS	0.0	NS	NS
GMP-8	07/28/1995	0.058	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.76	20	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.123	18	82	0.23	4.60	<0.5	<0.5
	09/01/1999	0.5	17.1	82.4	<0.1	NS	<0.2	<0.2
	10/04/1999	NS	NS	NS	NS	NS	0.004	NS
	10/21/1999	NS	NS	NS	NS	NS	0.00029 - 0.28	NS
	12/02/1999	NS	NS	NS	NS	16.0	NS	NS
	12/07/1999	0.36	18	82	0.0089	NS	NS	NS
	12/28/1999	0.34	19	81	0.067	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	22.0	NS	NS
	07/27/2000	NS	NS	NS	NS	36.0	NS	NS
	07/28/2000	4.1	18	74	3.5	NS	NS	NS
	08/10/2000	NS	NS	NS	NS	24.0	NS	NS
	08/11/2000	1.4	21	77	0.95	NS	NS	NS
	08/28/2000	NS	NS	NS	NS	16.0	NS	NS
	09/08/2000	NS	NS	NS	NS	37.0	NS	NS
	09/11/2000	0.43	23	76	0.2	NS	<0.51	<0.51
	10/12/2000	NS	NS	NS	NS	2.0	NS	NS
	10/13/2000	0.63	21	78	0.34	NS	NS	NS
	11/02/2000	NS	NS	NS	NS	>100	NS	NS
	11/03/2000	8.4	13	73	6.1	NS	NS	NS
	11/27/2000	NS	NS	NS	NS	34.0	NS	NS

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Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
	11/28/2000	9.3	11	72	7.6	NS	NS	NS
	12/14/2000	NS	NS	NS	NS	0.0	NS	NS
	12/15/2000	0.047	21	79	0.00044J	NS	NS	NS
GMP-9	08/22/1994	0.041	21	79	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.071	21	76	<0.001	<0.02	<0.5	<0.005
	10/27/1994	5.7	17	77	<0.001	<0.02	<0.5	<0.5
	05/31/1995	0.04	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.07	20	80	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.16	22	78	<0.001	<0.02	<0.5	<0.5
	09/12/1995	17	6.4	77	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.055	18	82	<0.0001	<0.002	<0.5	<0.5
	09/01/1999	38.4	1.7	50	9.8	NS	<0.2	<0.2
	10/21/1999	NS	NS	NS	NS	NS	0.00067 - 0.6	NS
	12/02/1999	NS	NS	NS	NS	2.0	NS	NS
	12/07/1999	2.5	18	80	<0.001	NS	NS	NS
	12/28/1999	4.6	15	80	<0.0062	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	2.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/14/2000	20	1.4	67	12	NS	NS	NS
	07/27/2000	NS	NS	NS	NS	>100	NS	NS
	07/28/2000	25	3.9	46	25	NS	NS	NS
	08/10/2000	NS	NS	NS	NS	>100	NS	NS
	08/11/2000	28	3.5	44	26	NS	NS	NS
	08/28/2000	NS	NS	NS	NS	51.0	NS	NS
	08/29/2000	7.2	15	72	6.1	NS	NS	NS
	09/08/2000	NS	NS	NS	NS	>100	NS	NS
	09/11/2000	28	2.6	49	21	NS	<0.39	1.24
	10/12/2000	NS	NS	NS	NS	6.0	NS	NS
	10/13/2000	2.1	18	79	0.69	NS	NS	NS
	11/02/2000	NS	NS	NS	NS	7.0	NS	NS
	11/27/2000	NS	NS	NS	NS	2.0	NS	NS
	11/28/2000	11	9.8	79	0.53	NS	NS	NS

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
	11/28/2000	17	4.4	79	0.74	NS	NS	NS
	12/14/2000	NS	NS	NS	NS	1.0	NS	NS
GMP-10	08/22/1994	0.041	21	79	<0.001	<0.02	<0.5	<0.005
	10/10/1994	0.41	22	77	<0.001	<0.02	<0.5	<0.5
	10/27/1994	0.032	21	79	<0.001	<0.02	<0.5	<0.5
	11/28/1994	0.042	21	79	<0.001	<0.02	<0.5	<0.5
	12/30/1994	0.019	19	80	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.78	23	76	<0.001	<0.02	<0.5	<0.5
	02/28/1995	0.066	21	79	<0.001	<0.02	<0.5	<0.5
	03/28/1995	0.066	21	79	<0.001	<0.02	<0.5	<0.5
	04/27/1995	0.062	20	80	<0.001	<0.02	<0.5	<0.5
	05/31/1995	0.046	NS	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.51	NS	80	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.058	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.12	17	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.044	18	82	0.00026	0.0052	<0.5	<0.5
	10/04/1999	NS	NS	NS	NS	NS	0.0045	NS
	09/01/1999	0.2	17	82.8	<0.1	NS	<0.2	<0.2
	12/02/1999	NS	NS	NS	NS	2.0	NS	NS
	12/07/1999	0.24	18	82	<0.0010	NS	NS	NS
	12/28/1999	0.33	20	80	<0.0062	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/11/2000	0.5	21	78	0.009	NS	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	09/08/2000	NS	NS	NS	NS	0.0	NS	NS
	09/11/2000	0.28	22	77	0.00030J	NS	<0.39	<0.39
	10/12/2000	NS	NS	NS	NS	0.0	NS	NS
	11/02/2000	NS	NS	NS	NS	0.0	NS	NS
	11/03/2000	1.2	20	78	0.0076J	NS	NS	NS

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
	11/03/2000	0.22	21	79	0.00029J	NS	NS	NS
	11/27/2000	NS	NS	NS	NS	0.0	NS	NS
	12/14/2000	NS	NS	NS	NS	0.0	NS	NS
	12/15/2000	0.45	22	78	0.00024J	NS	NS	NS
GMP-11	08/22/1994	0.038	22	78	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.042	21	73	<0.001	<0.02	<0.5	<0.005
	10/27/1994	0.029	21	79	<0.001	<0.02	<0.5	<0.5
	11/28/1994	0.033	21	79	<0.001	<0.02	<0.5	<0.5
	12/30/1994	0.017	21	79	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.03	24	76	<0.001	<0.02	<0.5	<0.5
	02/28/1995	0.043	21	79	<0.001	<0.02	<0.5	<0.5
	03/28/1995	0.038	22	78	<0.001	<0.02	<0.5	<0.5
	04/27/1995	0.04	20	80	<0.001	<0.02	<0.5	<0.5
	05/31/1995	0.039	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.04	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.054	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.064	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.039	18	82	<0.0001	<0.002	<0.5	<0.5
	09/02/1999	0.2	17.2	82.8	<0.1	NS	<0.2	<0.2
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.078	18	82	<0.001	NS	NS	NS
	12/28/1999	0.057	21	79	<0.0025	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/14/2000	0.64	21	78	0.00026J	NS	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	08/29/2000	2.4	15	83	0.013	NS	NS	NS
	09/08/2000	NS	NS	NS	NS	0.0	NS	NS
	09/11/2000	0.059	21	78	0.014	NS	.23J	0.66
	10/12/2000	NS	NS	NS	NS	0.0	NS	NS

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
GMP-12	11/02/2000	NS	NS	NS	NS	1.0	NS	NS
	11/03/2000	0.079	21	79	0.00066J	NS	NS	NS
	11/27/2000	NS	NS	NS	NS	1.0	NS	NS
	12/14/2000	NS	NS	NS	NS	1.0	NS	NS
	12/15/2000	2.6	16	81	0.0004J	NS	NS	NS
GMP-12	08/22/1994	0.037	22	78	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.034	21	74	<0.001	<0.02	<0.5	<0.005
	10/27/1994	0.029	21	79	<0.001	<0.02	<0.5	<0.5
	11/28/1994	0.032	21	79	<0.001	<0.02	<0.5	<0.5
	12/30/1994	0.017	22	78	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.029	24	76	<0.001	<0.02	<0.5	<0.5
	02/28/1995	0.041	21	79	<0.001	<0.02	<0.5	<0.5
	03/28/1995	0.038	22	78	<0.001	<0.02	<0.5	<0.5
	04/27/1995	0.043	19	81	<0.001	<0.02	<0.5	<0.5
	05/31/1995	0.04	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	1.137	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.054	22	78	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.046	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.042	18	82	0.00018	0.0036	<0.5	<0.5
	09/01/1999	<0.1	17.1	82.9	<0.1	NS	<0.2	<0.2
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.04	18	82	<0.001	NS	NS	NS
	12/28/1999	0.048	19	81	<0.0062	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	09/08/2000	NS	NS	NS	NS	0.0	NS	NS
	10/12/2000	NS	NS	NS	NS	0.0	NS	NS
	11/02/2000	NS	NS	NS	NS	1.0	NS	NS
	11/27/2000	NS	NS	NS	NS	1.0	NS	NS

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
	12/14/2000	NS	NS	NS	NS	1.0	NS	NS
GMP-13	08/22/1994	0.039	21	79	<0.001	0.02	<0.5	<0.005
	09/28/1994	0.059	21	74	0.027	0.54	<0.5	<0.005
	10/27/1994	0.028	21	79	<0.001	<0.02	<0.5	<0.5
	11/28/1994	0.032	21	79	<0.001	<0.02	<0.5	<0.5
	12/30/1994	0.017	23	77	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.032	24	76	<0.001	<0.02	<0.5	<0.5
	02/28/1995	0.04	21	79	<0.001	<0.02	<0.5	<0.5
	03/28/1995	0.038	21	79	<0.001	<0.02	<0.5	<0.5
	04/27/1995	0.039	20	80	<0.001	<0.02	<0.5	<0.5
	05/31/1995	0.039	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.037	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.053	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.051	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.037	18	82	<0.0001	<0.002	<0.5	<0.5
	09/01/1999	0.3	17	82.7	<0.1	NS	<0.2	<0.2
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.087	18	82	0.023	NS	NS	NS
	12/28/1999	3.8	16	80	0.18	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	09/08/2000	NS	NS	NS	NS	0.0	NS	NS
	09/11/2000	0.4	22	77	0.70J	<0.51	0.71J	NS
	10/12/2000	NS	NS	NS	NS	>100	NS	NS
	10/13/2000	7.5	12	60	21	NS	NS	NS
	11/02/2000	NS	NS	NS	NS	37.0	NS	NS
	11/27/2000	NS	NS	NS	NS	3.0	NS	NS
	12/14/2000	NS	NS	NS	NS	0.0	NS	NS
GMP-14	08/19/1994	6.3	16	78	<0.001	<0.02	<0.5	<0.005

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
	09/28/1994	10	11	74	<0.001	<0.02	<0.5	<0.005
	11/28/1994	0.035	20	80	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.046	24	76	<0.001	<0.02	<0.5	<0.5
	05/31/1995	0.039	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.048	19	80	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.048	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.04	19	81	0.0015	0.003	<0.5	<0.5
	09/01/1999	12.6	11.5	75.9	<0.1	NS	<0.2	<0.2
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	2.8	15	82	0.016	NS	NS	NS
	12/28/1999	5.2	15	80	0.0081	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	07/13/2000	NS	NS	NS	NS	0.0	NS	NS
	07/27/2000	NS	NS	NS	NS	0.0	NS	NS
	08/10/2000	NS	NS	NS	NS	0.0	NS	NS
	08/28/2000	NS	NS	NS	NS	0.0	NS	NS
	09/08/2000	NS	NS	NS	NS	0.0	NS	NS
	09/11/2000	0.85	22	77	0.0093	NS	<0.39	<0.39
	10/12/2000	NS	NS	NS	NS	0.0	NS	NS
	11/02/2000	NS	NS	NS	NS	0.0	NS	NS
	11/27/2000	NS	NS	NS	NS	0.0	NS	NS
	12/14/2000	NS	NS	NS	NS	0.0	NS	NS
GMP-15	07/28/1995	3.2	17	80	<0.001	<0.02	<0.5	<0.5
	09/12/1995	3.6	17	79	<0.001	<0.02	<0.5	<0.5
	06/26/1995	0.048	19	81	0.00019	0.0038	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.44	18	82	<0.001	NS	NS	NS
	12/28/1999	0.45	20	80	<0.001	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
	09/11/2000	1.8	20	78	0.00093J	NS	<0.19	0.35J
GMP-16	08/19/1994	0.046	22	78	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.04	21	76	<0.001	<0.02	<0.5	<0.005

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
	05/31/1995	0.039	20	80	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.037	19	81	<0.001	<0.02	1.2	<0.5
	07/28/1995	0.053	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.052	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.064	18	82	<0.0001	<0.002	<0.5	<0.5
GMP-17	06/28/1995	0.096	19	80	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.21	21	79	<0.001	<0.02	<0.5	<0.5
	12/29/2000	NS	NS	NS	NS	0.0	NS	NS
GMP-18	08/19/1994	0.039	22	78	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.039	21	74	<0.001	<0.02	<0.5	<0.005
	11/28/1994	0.032	21	79	<0.001	<0.02	<0.5	<0.5
	01/25/1995	0.028	24	76	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.038	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.053	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.053	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.036	18	82	<0.0001	<0.002	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.39	18	82	0.0097	NS	NS	NS
	12/28/1999	0.57	17	82	0.011	NS	NS	NS
	12/29/2000	NS	NS	NS	NS	0.0	NS	NS
GMP-19	06/28/1995	0.04	19	81	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.067	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.037	18	82	0.00019	0.0038	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
GMP-20	07/28/1995	0.054	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.046	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.045	18	82	0.00017	0.0034	<0.05	<0.5
	12/07/1999	0.041	18	82	<0.001	NS	NS	NS
GMP-21	08/19/1994	0.038	21	79	<0.001	<0.02	<0.5	<0.5
	09/28/1994	0.035	21	76	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.038	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.054	21	79	<0.001	<0.02	<0.5	<0.5

**TABLE B-1**  
 Cumulative Results of Soil-Gas Analyses  
 Perimeter Soil Gas Monitoring Probes  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
	09/12/1995	0.078	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.043	18	82	<0.0001	<0.002	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	1.0	NS	NS
	12/07/1999	0.043	18	82	<0.001	NS	NS	NS
	12/28/1999	0.047	19	81	<0.0067	NS	NS	NS
	12/29/1999	NS	NS	NS	NS	0.0	NS	NS
GMP-22	08/19/1994	0.039	22	78	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.036	21	74	<0.001	<0.02	<0.5	<0.005
	05/31/1995	0.04	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.038	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.057	22	78	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.049	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.049	20	80	0.0002	0.004	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.062	18	82	<0.001	NS	NS	NS
	12/28/1999	0.045	21	79	<0.0026	NS	NS	NS
GMP-23	08/19/1994	0.039	21	79	<0.001	<0.02	<0.5	<0.005
	09/28/1994	0.034	21	76	<0.001	<0.02	<0.5	<0.005
	05/31/1995	0.039	19	81	<0.001	<0.02	<0.5	<0.5
	06/28/1995	0.036	19	81	<0.001	<0.02	<0.5	<0.5
	07/28/1995	0.055	21	79	<0.001	<0.02	<0.5	<0.5
	09/12/1995	0.072	21	79	<0.001	<0.02	<0.5	<0.5
	06/26/1996	0.05	19	81	0.00018	0.0036	<0.5	<0.5
	12/02/1999	NS	NS	NS	NS	0.0	NS	NS
	12/07/1999	0.063	18	82	<0.001	NS	NS	NS
	12/28/1999	0.038	19	81	<0.0054	NS	NS	NS
	12/29/2000	NS	NS	NS	NS	0.0	NS	NS

Notes:

J: Indicates result is estimated

ND: Not detected

NS: Not Sampled

**TABLE B-2**  
 Field Parameters for Monitoring Wells  
 Supplemental and Annual Monitoring Events, July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
MW-78	7/13/00	NS	20.9	NS	NS	0	NS	NS
	7/27/00	NS	20.8	NS	NS	8	NS	NS
	8/10/00	NS	20.9	NS	NS	9	NS	NS
	8/28/00	NS	20.4	NS	NS	12	NS	NS
	9/8/00	NS	19.4	NS	NS	22	NS	NS
	10/12/00	NS	18.4	NS	NS	61	NS	NS
	11/2/00	NS	17.4	NS	NS	28	NS	NS
	11/27/00	NS	20.5	NS	NS	18	NS	NS
	12/14/00	NS	17.6	NS	NS	>100	NS	NS
MW-81	7/13/00	NS	20.6	NS	NS	0	NS	NS
	7/27/00	NS	20.5	NS	NS	2	NS	NS
	8/10/00	NS	21.0	NS	NS	1	NS	NS
	9/28/00	NS	5.1	NS	NS	>100	NS	NS
	9/8/00	NS	1.3	NS	NS	>100	NS	NS
	10/12/00	NS	20.9	NS	NS	0	NS	NS
	11/2/00	NS	0.1	NS	NS	>100	NS	NS
	11/27/00	NS	5.1	NS	NS	>100	NS	NS
	12/14/00	NS	20.9	NS	NS	0	NS	NS
MW-81D	7/13/00	NS	20.9	NS	NS	1	NS	NS
	7/27/00	NS	19.4	NS	NS	15	NS	NS
	8/10/00	NS	20.7	NS	NS	3	NS	NS
	8/28/00	NS	16.5	NS	NS	94	NS	NS
	9/8/00	NS	12.8	NS	NS	>100	NS	NS
	10/12/00	NS	14.8	NS	NS	7	NS	NS
	11/2/00	NS	11.4	NS	NS	6	NS	NS
	11/27/00	NS	20.9	NS	NS	1	NS	NS
	12/14/00	NS	13.2	NS	NS	>100	NS	NS
MW-82	7/13/00	NS	18.1	NS	NS	>100	NS	NS
	7/27/00	NS	14.5	NS	NS	>100	NS	NS
	8/10/00	NS	7.4	NS	NS	>100	NS	NS
	8/28/00	NS	12.1	NS	NS	>100	NS	NS
	9/8/00	NS	6.7	NS	NS	>100	NS	NS
	10/12/00	NS	9.1	NS	NS	>100	NS	NS

**TABLE B-2**  
 Field Parameters for Monitoring Wells  
 Supplemental and Annual Monitoring Events, July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
MW-82D	11/2/00	NS	6.4	NS	NS	>100	NS	NS
	11/27/00	NS	11.6	NS	NS	>100	NS	NS
	12/14/00	NS	10.4	NS	NS	>100	NS	NS
MW-86	7/13/00	NS	20.5	NS	NS	0	NS	NS
	7/27/00	NS	20.6	NS	NS	0	NS	NS
	8/10/00	NS	21.0	NS	NS	0	NS	NS
	8/28/00	NS	20.7	NS	NS	0	NS	NS
	9/8/00	NS	20.4	NS	NS	0	NS	NS
	10/12/00	NS	20.8	NS	NS	0	NS	NS
	11/2/00	NS	20.2	NS	NS	0	NS	NS
	11/27/00	NS	20.9	NS	NS	1	NS	NS
	12/14/00	NS	20.9	NS	NS	0	NS	NS
MW-86D	7/13/00	NS	20.4	NS	NS	3	NS	NS
	7/27/00	NS	14.0	NS	NS	44	NS	NS
	8/10/00	NS	10.3	NS	NS	36	NS	NS
	8/28/00	NS	13.8	NS	NS	13	NS	NS
	9/8/00	NS	14.4	NS	NS	53	NS	NS
	10/12/00	NS	10.9	NS	NS	1	NS	NS
	11/2/00	NS	15.8	NS	NS	16	NS	NS
	11/27/00	NS	14.4	NS	NS	>100	NS	NS
	12/14/00	NS	15.6	NS	NS	>100	NS	NS

**TABLE B-2**  
 Field Parameters for Monitoring Wells  
 Supplemental and Annual Monitoring Events, July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
MW-87	7/13/00	NS	NA	NS	NS	NA	NS	NS
	7/27/00	NS	NA	NS	NS	NA	NS	NS
	8/10/00	NS	NA	NS	NS	NA	NS	NS
	8/28/00	NS	NA	NS	NS	NA	NS	NS
	9/8/00	NS	14.4	NS	NS	23	NS	NS
	10/12/00	NS	14.9	NS	NS	43	NS	NS
	11/2/00	NS	11.6	NS	NS	>100	NS	NS
	11/27/00	NS	14.4	NS	NS	>100	NS	NS
	12/14/00	NS	20.9	NS	NS	0	NS	NS
MW-88	12/14/00	NS	16.5	NS	NS	40	NS	NS
MW-89	7/13/00	NS	20.5	NS	NS	0	NS	NS
	7/27/00	NS	20.0	NS	NS	0	NS	NS
	8/10/00	NS	20.8	NS	NS	0	NS	NS
	8/28/00	NS	20.5	NS	NS	0	NS	NS
	9/8/00	NS	20.2	NS	NS	0	NS	NS
	10/12/00	NS	19.5	NS	NS	0	NS	NS
	11/2/00	NS	19.7	NS	NS	0	NS	NS
	11/27/00	NS	20.1	NS	NS	1	NS	NS
	12/14/00	NS	20.9	NS	NS	0	NS	NS
MW-92-38	7/13/00	NS	20.9	NS	NS	0	NS	NS
	7/27/00	NS	20.6	NS	NS	0	NS	NS
	8/10/00	NS	20.7	NS	NS	0	NS	NS
	8/28/00	NS	20.2	NS	NS	0	NS	NS
	9/8/00	NS	20.2	NS	NS	0	NS	NS
	10/12/00	NS	20.4	NS	NS	0	NS	NS
	11/2/00	NS	18.9	NS	NS	1	NS	NS
	11/27/00	NS	20.9	NS	NS	1	NS	NS
	12/14/00	NS	20.9	NS	NS	0	NS	NS

**TABLE B-2**  
 Field Parameters for Monitoring Wells  
 Supplemental and Annual Monitoring Events, July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>Probe Number</b>	<b>Sample Date</b>	<b>CO<sub>2</sub> %</b>	<b>O<sub>2</sub> %</b>	<b>N<sub>2</sub> %</b>	<b>CH<sub>4</sub> %</b>	<b>LEL %</b>	<b>Methylene Chloride ppmv</b>	<b>Benzene ppmv</b>
MW-92-39	7/13/00	NS	20.7	NS	NS	0	NS	NS
	7/27/00	NS	20.2	NS	NS	0	NS	NS
	8/10/00	NS	20.4	NS	NS	0	NS	NS
	8/28/00	NS	20.0	NS	NS	0	NS	NS
	9/8/00	NS	20.0	NS	NS	0	NS	NS
	10/12/00	NS	20.5	NS	NS	0	NS	NS
	11/2/00	NS	20.0	NS	NS	0	NS	NS
	11/27/00	NS	20.9	NS	NS	1	NS	NS
	12/14/00	NS	20.5	NS	NS	0	NS	NS
MW-92-43	7/13/00	NS	NA	NS	NS	NA	NS	NS
	7/27/00	NS	20.4	NS	NS	1	NS	NS
	8/10/00	NS	21.0	NS	NS	0	NS	NS
	8/28/00	NS	20.3	NS	NS	1	NS	NS
	9/8/00	NS	20.3	NS	NS	0	NS	NS
	10/12/00	NS	18.6	NS	NS	1	NS	NS
	11/2/00	NS	18.8	NS	NS	1	NS	NS
	11/27/00	NS	19.4	NS	NS	2	NS	NS
	12/14/00	NS	17.1	NS	NS	1	NS	NS
MW-L26-1	7/13/00	NS	NA	NS	NS	NA	NS	NS
	7/27/00	NS	20.2	NS	NS	1	NS	NS
	8/10/00	NS	21.0	NS	NS	0	NS	NS
	8/28/00	NS	20.2	NS	NS	1	NS	NS
	9/8/00	NS	20.2	NS	NS	0	NS	NS
	10/12/00	NS	20.7	NS	NS	0	NS	NS
	11/2/00	NS	20.6	NS	NS	0	NS	NS
	11/27/00	NS	20.9	NS	NS	0	NS	NS
	12/14/00	NS	19.9	NS	NS	1	NS	NS

**TABLE B-2**  
 Field Parameters for Monitoring Wells  
 Supplemental and Annual Monitoring Events, July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
MW-PL-111A	7/13/00	NS	20.7	NS	NS	0	NS	NS
	7/27/00	NS	20.1	NS	NS	1	NS	NS
	8/10/00	NS	20.9	NS	NS	0	NS	NS
	8/28/00	NS	20.4	NS	NS	0	NS	NS
	9/8/00	NS	20.5	NS	NS	0	NS	NS
	10/12/00	NS	20.7	NS	NS	0	NS	NS
	11/2/00	NS	20.5	NS	NS	0	NS	NS
	11/27/00	NS	20.9	NS	NS	0	NS	NS
	12/14/00	NS	20.9	NS	NS	0	NS	NS
MW-PL-114	7/13/00	NS	NA	NS	NS	NA	NS	NS
	7/27/00	NS	20.2	NS	NS	1	NS	NS
	8/10/00	NS	20.9	NS	NS	0	NS	NS
	8/28/00	NS	20.7	NS	NS	0	NS	NS
	9/8/00	NS	20.4	NS	NS	0	NS	NS
	10/12/00	NS	20.9	NS	NS	0	NS	NS
	11/2/00	NS	20.4	NS	NS	0	NS	NS
	11/27/00	NS	20.9	NS	NS	0	NS	NS
	12/14/00	NS	20.9	NS	NS	1	NS	NS
MW-POLA-118	7/13/00	NS	NA	NS	NS	NA	NS	NS
	7/27/00	NS	20.2	NS	NS	1	NS	NS
	8/10/00	NS	20.9	NS	NS	0	NS	NS
	8/28/00	NS	20.5	NS	NS	0	NS	NS
	9/8/00	NS	20.5	NS	NS	0	NS	NS
	10/12/00	NS	20.8	NS	NS	0	NS	NS
	11/2/00	NS	20.2	NS	NS	0	NS	NS
	11/27/00	NS	20.9	NS	NS	0	NS	NS
	12/14/00	NS	20.5	NS	NS	1	NS	NS

**TABLE B-2**  
 Field Parameters for Monitoring Wells  
 Supplemental and Annual Monitoring Events, July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Date	CO <sub>2</sub> %	O <sub>2</sub> %	N <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Methylene Chloride ppmv	Benzene ppmv
MW-POLA-119	7/13/00	NS	20.4	NS	NS	0	NS	NS
	7/27/00	NS	19.5	NS	NS	1	NS	NS
	8/10/00	NS	19.3	NS	NS	0	NS	NS
	8/28/00	NS	18.8	NS	NS	0	NS	NS
	9/8/00	NS	18.9	NS	NS	0	NS	NS
	10/12/00	NS	18.7	NS	NS	0	NS	NS
	11/2/00	NS	18.0	NS	NS	1	NS	NS
	11/27/00	NS	20.8	NS	NS	1	NS	NS
PZ-9	12/14/00	NS	20.1	NS	NS	1	NS	NS
	7/13/00	NS	NA	NS	NS	NA	NS	NS
	7/27/00	NS	19.9	NS	NS	1	NS	NS
	8/10/00	NS	20.8	NS	NS	0	NS	NS
	8/28/00	NS	20.7	NS	NS	1	NS	NS
	9/8/00	NS	20.7	NS	NS	1	NS	NS
	10/12/00	NS	19.2	NS	NS	0	NS	NS
	11/2/00	NS	17.6	NS	NS	1	NS	NS
	11/27/00	NS	18.9	NS	NS	1	NS	NS
	12/14/00	NS	17.5	NS	NS	1	NS	NS
PZ-16	12/14/00	NS	20.9	NS	NS	0	NS	NS

Notes:

NA: Not applicable or data not collected

NS: Not Sampled

MW: Monitoring well

GMP: Gas monitoring probe

**TABLE B-3**  
 Analytical Results for Soil Gas Samples from Direct-Push Borings  
 July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Number <sup>a</sup>	Sample Date	CO <sub>2</sub> <sup>b</sup> %	O <sub>2</sub> <sup>c</sup> %	N <sub>2</sub> <sup>d</sup> %	CH <sub>4</sub> <sup>e</sup> %	LEL %
GMP-5	GMP5-DP36	10/13/00	2.8	21	76	0.0079	NS
	GMP303 (DP36)	10/13/00	2.6	19	78	0.0010J	NS
	GMP5-DP37	10/13/00	31	1.3	18	50	NS
	GMP5-DP42	11/3/00	0.56	19	81	0.00088J	NS
	GMP5-DP43	11/3/00	2.9	16	82	0.00013J	NS
	GMP305 (DP43)	11/3/00	2.4	16	82	0.00044J	NS
	GMP5-DP48	11/28/00	1.3	20	79	0.00053J	NS
	GMP5-DP49	11/28/00	14	3.7	82	0.0017J	NS
	GMP5-DP54	12/15/00	0.62	19	80	0.00051J	NS
GMP-7	GMP7-DP25	8/29/00	0.6	20	79	0.019	NS
	GMP7-DP26	9/15/00	1.5	13	85	0.52	NS
	GMP7-DP55	12/15/00	1.1	14	84	0.0027J	NS
GMP-8	GMP8-DP5	7/14/00	2	18	80	0.17	NS
	GMP8-DP10	7/28/00	1.2	19	80	0.024	NS
	GMP8-DP15	8/11/00	0.77	19	80	0.20	NS
	GMP8-DP23	8/29/00	1.2	19	79	0.86	NS
	GMP8-DP24	8/29/00	0.09	21	79	0.0078	NS
	GMP8-DP27	9/15/00	0.089	21	79	0.021	NS
	GMP8-DP31	9/15/00	1.8	20	78	0.0028	NS
	GMP8-DP45	11/3/00	0.63	20	80	0.0024J	NS
GMP-9	GMP9-DP4	7/14/00	6.2	15	79	0.14	NS
	GMP9-DP9	7/28/00	28	1.5J	40	30	NS
	GMP300 (DP9)	7/28/00	26	3.2J	43	28	NS
	GMP9-DP12	8/11/00	14	9.3	68	8.9	NS
	GMP9-DP13	8/11/00	17	9.4	73	0.37	NS
	GMP301 (DP13)	8/11/00	27	1.9	71	0.50	NS
	GMP9-DP14	8/11/00	7.6	14	78	0.028	NS
	GMP9-DP18	8/29/00	24	5.7	50	20	NS
	GMP9-DP19	8/29/00	7.7	14	75	2.9	NS
	GMP302 (DP19)	8/29/00	18	5.3	70	6.8	NS
	GMP9-DP20	8/29/00	0.35	21	79	0.076	NS
	GMP9-DP21	8/29/00	2.4	16	82	0.019	NS
	GMP9-DP22	8/29/00	3.5	17	78	1.6	NS

**TABLE B-3**  
 Analytical Results for Soil Gas Samples from Direct-Push Borings  
 July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Number <sup>a</sup>	Sample Date	CO <sub>2</sub> <sup>b</sup> %	O <sub>2</sub> <sup>c</sup> %	N <sub>2</sub> <sup>d</sup> %	CH <sub>4</sub> <sup>e</sup> %	LEL %
GMP9	GMP9-DP28	9/15/00	7.2	17	72	4.3	NS
	GMP9-DP32	9/15/00	1.4	18	81	0.0096	NS
	GMP9-DP38	10/13/00	2.0	20	77	0.91	NS
	GMP9-DP39	10/13/00	9.0	2.3	89	0.048	NS
	GMP9-DP44	11/3/00	20	1.6	69	8.9	NS
	GMP9-DP46	11/3/00	13	8.0	79	0.23	NS
	GMP9-DP50	11/28/00	0.26	22.0	78	0.0037	NS
	GMP9-DP56	12/15/00	3.8	16.0	80	0.12	NS
GMP-10	GMP10-DP3	7/14/00	1.9	19	79	0.081	NS
	GMP10-DP8	7/28/00	1.9	20	77	0.61	NS
	GMP10-DP33	9/15/00	10	6.1	82	1.8	NS
	GMP10-DP40	10/13/00	0.18	21	78	0.012	NS
	GMP10-DP51	11/28/00	1.0	17	82	0.0029	NS
GMP-11	GMP11-DP11	8/11/00	0.75	21	78	0.0039	NS
	GMP11-DP17	8/29/00	0.27	21	79	0.0075	NS
	GMP11-DP29	9/15/00	1.1	21	78	0.0026	NS
	GMP11-DP34	9/15/00	3.4	16	81	0.0095	NS
GMP-12	GMP12-DP2	7/14/00	22	4.6	73	0.00023	NS
	GMP12-DP7	7/28/00	28	2.6	69	0.022	NS
	GMP12-DP52	11/28/00	44	1.0	39	16	NS
	GMP306 (DP52)	11/28/00	44	0.92	39	16	NS
	GMP12-DP57	12/15/00	19	5.3	62	13	NS
	GMP12-DP58	12/15/00	10	3.4	86	0.93	NS
GMP-13	GMP13-DP1	7/14/00	2.9	19	78	0.00047J	NS
	GMP13-DP6	7/28/00	3.1	20	77	0.0054	NS
	GMP13-DP16	8/29/00	2.6	19	78	0.0026J	NS
	GMP13-DP30	9/15/00	1.1	20	79	0.00063J	NS
	GMP13-DP35	9/15/00	0.97	21	78	0.001J	NS
	GMP13-DP41	10/13/00	0.092	21	79	0.061	NS
	GMP13-DP47	11/3/00	15	1.6	79	4.3	NS

**TABLE B-3**  
 Analytical Results for Soil Gas Samples from Direct-Push Borings  
 July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

Probe Number	Sample Number <sup>a</sup>	Sample Date	CO <sub>2</sub> <sup>b</sup> %	O <sub>2</sub> <sup>c</sup> %	N <sub>2</sub> <sup>d</sup> %	CH <sub>4</sub> <sup>e</sup> %	LEL %
	GMP13-DP53	11/28/00	9.4	7.7	80	3.0	NS
GMP-14	GMP14-DP59	12/15/00	7.7	7.3	85	0.085	NS

Notes:

J: indicates result is estimated

<sup>a</sup> GMP300-series samples are field duplicate samples

<sup>b</sup> Low-level PQL is 0.0020%

<sup>c</sup> Low-level PQL is 0.20%

<sup>d</sup> Low-level PQL is 0.40%

<sup>e</sup> Low-level PQL is 0.0020%

**TABLE B-4**  
 Dissolved Methane in Gas Monitoring Probes and Monitoring Wells  
 Analytical Results for Groundwater Samples Collected July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>GMP/MW Sample Location</b>	<b>Sample Number<sup>a</sup></b>	<b>Date Collected</b>	<b>Dissolved Methane<sup>b,c</sup> (mg/L)</b>
GMP-5	GMP5-01W	7/14/00	270
	GMP5-02W	7/28/00	130J-
	GMP5-03W	8/11/00	370
	GMP501-W (GMP-5)	8/11/00	380
	GMP5-04W	8/29/00	350
	GMP5-05W	9/19/00	660
	GMP5-06W	10/13/00	660
	GMP5-07W	11/3/00	790
	GMP5-08W	11/28/00	420
	GMP5-09W	12/15/00	810
GMP-7	GMP7-01W	7/14/00	400
	GMP500 (GMP-7)	7/14/00	390
	GMP7-02W	7/28/00	2.4J-
	GMP7-03W	8/11/00	17
	GMP7-04W	8/29/00	5.2
	GMP7-05W	9/19/00	2.7
	GMP7-06W	10/13/00	1.2
	GMP7-07W	11/3/00	0.43J
	GMP7-08W	11/28/00	<0.65J
	GMP7-09W	12/15/00	<0.41J
GMP-9	GMP9-01W	7/14/00	670
	GMP9-02W	7/28/00	1,200J-
	GMP9-03W	8/11/00	2,200
	GMP9-04W	8/29/00	1,800
	GMP9-05W	9/19/00	1,300
	GMP9-06W	10/13/00	2,200
	GMP9-07W	11/3/00	910
	GMP9-08W	11/28/00	840
	GMP9-09W	12/15/00	740
	GMP9504-W (GMP-9)	12/15/00	840
GMP-11	GMP11-01W	7/14/00	<1
	GMP11-02W	7/28/00	2.2J-
	GMP11-03W	8/11/00	5.9

**TABLE B-4**  
 Dissolved Methane in Gas Monitoring Probes and Monitoring Wells  
 Analytical Results for Groundwater Samples Collected July Through December 2000  
*Landfill 26, Hamilton Army Airfield, Novato, California*

<b>GMP/MW Sample Location</b>	<b>Sample Number<sup>a</sup></b>	<b>Date Collected</b>	<b>Dissolved Methane<sup>b,c</sup> (mg/L)</b>
	GMP11-04W	8/29/00	<1
	GMP11-05W	9/19/00	0.27J
	GMP11-06W	10/13/00	0.66J
	GMP11-07W	11/3/00	<0.56J
	GMP11-08W	11/28/00	<2.1J
	GMP503-W (GMP-11)	11/28/00	<0.86J
	GMP11-09W	12/15/00	<0.43J
GMP-12	GMP12-W	9/19/00	13
	GMP200-W (GMP-12)	9/19/00	13
GMP-13	GMP13-01W	7/14/00	370
	GMP13-02W	7/28/00	1,600J-
	GMP13-03W	8/11/00	6,600
	GMP13-04W	8/29/00	1,300
	GMP13-05W	9/19/00	1,800
	GMP13-06W	10/13/00	2,800
	GMP502-W (GMP-13)	10/13/00	2,300
	GMP13-07W	11/3/00	2,800
	GMP13-08W	11/28/00	2,600
	GMP13-09W	12/15/00	3,500
GMP-14	GMP14-W	9/19/00	85
MW-78	MW-78	9/18/00	3,000
MW-81D	MW-81D	9/18/00	140
MW-82	MW-82	9/19/00	2,200
MW-86	MW-86	9/18/00	1,800
MW-87	MW-87	9/19/00	1,500

J or J- indicates result is estimated

<sup>a</sup> GMP500-series and GMP200-series samples are field duplicates

<sup>b</sup> Analyzed using Method RSK-175

<sup>c</sup> Low-level PQL is 1 µg/L

**APPENDIX C**

## **Historical Groundwater Elevation Measurements at Landfill 26**

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## Groundwater Elevation Data for Selected Locations

Source	Date	MW-92-38	MW-92-39	MW-92-40	MW-92-43	MW-92-44	MW-78	MW-81d	MW-82
SI - RI	01-Oct-85								
SI - RI	01-Dec-85								
SI - RI	01-Jan-86								
SI - RI	01-Feb-86								
SI - RI	01-Mar-86								
SI - RI	01-Jun-86					11.34			
SI - RI	01-Jul-86					10.34			
SI - RI	01-Aug-86					10.64			
SI - RI	01-Sep-86					10.29			
SI - RI	28-May-87					10.69	2.91	4.14	
SI - RI	29-Jun-87					10.29	2.70	3.67	
SI - RI	03-Aug-87					8.92	1.84	3.29	
SI - RI	31-Aug-87					9.64	1.47	3.13	
SI - RI	06-Oct-87					9.34	1.34	2.79	
SI - RI	03-Nov-87					9.59	2.19	2.64	
sirrine	20-Feb-90					13.13	4.45	6.39	
SI - RI	28-Feb-90					13.54	4.29	6.24	
sirrine	16-Mar-90					13.09	4.26	4.25	
sirrine	19-Apr-90					12.14	4.01	5.66	
sirrine	15-May-90					11.61	3.72	5.07	
sirrine	12-Jun-90					11.69	3.81	4.97	
sirrine	10-Jul-90					10.91	3.62	3.84	
sirrine	07-Aug-90					10.67	2.52	4.08	
sirrine	06-Sep-90					10.21	1.84	4.79	
sirrine	08-Oct-90					10.03	1.51	3.45	
sirrine	05-Nov-90					10.10	1.79	4.24	
brac	01-Jan-91								
sirrine	05-Feb-91					11.94	3.91	3.14	
sirrine	10-Mar-91					14.19	6.16	6.84	
brac	01-Apr-91								
brac	01-Jul-92								
Mon	13-Sep-93	10.91	12.65	-6.06	1.00	-2.25	9.82	1.12	3.85
Mon	13-Dec-93	13.08	14.57	-1.23	0.69	-1.18	13.22	3.90	5.37
Mon	22-Mar-94	13.14	14.00	0.37	0.71	-0.29	12.79	4.25	6.16
Mon	01-Jun-94	13.69	12.69	-2.09	1.61	-0.67	11.46	4.77	5.02
Mon	19-Sep-94	12.10	13.47	-4.00	-0.07	-1.51	11.55	4.46	5.66
unk	01-Nov-94								
Mon	01-Dec-94	14.51	15.22	-2.22		-0.22	7.16		
Mon	04-Mar-95	14.35	15.38	-1.51	1.67	0.13	7.30	5.50	4.32
unk	17-Mar-95								
Mon	01-Jun-95	12.96	14.59	-1.31	1.08	-0.05	6.93	5.40	4.72
POL	13-Jul-95								
unk?	24-Jul-95								
POL	11-Aug-95								
Mon	15-Sep-95	12.25	13.82	-1.36	0.53	-1.72	11.30	4.33	3.52
POL	18-Sep-95								
Mon	05-Dec-95	12.41	13.75	-2.28	-0.31	-2.51	11.20		5.01
unk	15-May-96	13.23	14.71	-0.11	1.15	-1.12	11.94	5.43	5.53
Mon	17-Jun-96	12.81	14.68	-0.24	0.99	-1.26	11.82	5.12	5.37
Mon	01-Sep-96	12.07	13.63	-1.70	-0.02	-2.11	11.18	3.94	5.23
Mon	01-Dec-96	14.11	15.20	-0.66	0.45	-1.61	11.78	5.39	5.08

## Groundwater Elevation Data for Selected Locations

Source	Date	MW-92-38	MW-92-39	MW-92-40	MW-92-43	MW-92-44	MW-78	MW-81d	MW-82
Mon	20-Mar-97	13.57	15.09	0.46	1.02	-1.30	11.97	5.51	5.46
navy?	28-May-97								
Mon	13-Jun-97	12.43	14.09	-0.49	0.49	-1.44	11.58	4.52	5.63
gsa2	01-Apr-98	13.92	15.40	1.07	0.70	-0.84			
gsa2	10-Jun-98	13.80	15.36	1.09	0.99	-0.83			
Mon	20-Jul-98	12.87	14.53	0.14	0.80	-1.19		5.02	5.56
gsa2	15-Apr-99	14.82	16.36	0.43	1.25			6.56	4.78
Mon	30-Aug-99	11.81		-0.93	0.34		11.60	4.83	5.67
gsa2	14-Sep-99	11.98						4.85	
CH4	02-Dec-99								
gsa2	13-Dec-99	12.76						5.25	
CH4	27-Dec-99								
mw lf26	06-Jan-00								
gsa2	14-Mar-00	14.48						6.35	
mw lf26	29-Jun-00								
CH4	13-Jul-00	12.25	13.58				11.68	5.32	5.64
CH4	27-Jul-00	12.20	13.47		0.51		11.65	5.17	5.73
CH4	10-Aug-00	12.10	13.40		0.34		11.56	4.93	5.64
CH4	28-Aug-00	11.92	13.23		0.21		11.45	4.78	5.63
Mon+CH4	08-Sep-00	11.97	13.30	-1.08	0.17		11.54	4.81	5.62
CH4	12-Oct-00	12.02	13.22		-0.23		11.13	4.40	4.95
CH4	02-Nov-00	12.70	13.77		-0.20		11.57	4.75	5.07
CH4	27-Nov-00	12.55	13.57		-0.26		11.44	5.04	4.76
CH4	14-Dec-00		13.57		-0.06		11.40	5.17	4.54

## Groundwater Elevation Data for Selected Locations

Source	Date	MW-82d	MW-86	MW-86d	MW-87	MW-88	MW-88d	MW-89
SI - RI	01-Oct-85							
SI - RI	01-Dec-85							
SI - RI	01-Jan-86							
SI - RI	01-Feb-86							
SI - RI	01-Mar-86							
SI - RI	01-Jun-86							
SI - RI	01-Jul-86							
SI - RI	01-Aug-86							
SI - RI	01-Sep-86							
SI - RI	28-May-87	2.59	6.05	5.81	9.87	5.46	3.76	15.25
SI - RI	29-Jun-87	2.15	5.78	5.49	9.71	4.86	3.15	14.55
SI - RI	03-Aug-87	1.61	5.43	5.21	9.50	4.10	2.63	13.98
SI - RI	31-Aug-87	1.22	5.33	5.03	9.27	3.75	2.27	13.65
SI - RI	06-Oct-87	0.86	5.23	4.96	8.83	3.40	1.99	13.25
SI - RI	03-Nov-87	0.86	5.16	4.83	8.58	3.22	2.05	13.20
sirrine	20-Feb-90	4.67	8.13	7.52	11.00	8.65	7.76	16.51
SI - RI	28-Feb-90	4.69	8.08	6.81	11.00	6.35		16.40
sirrine	16-Mar-90	4.62	7.83	6.66	10.80	6.12	4.88	16.40
sirrine	19-Apr-90	4.31	6.94	6.31	10.46	5.88	4.63	15.93
sirrine	15-May-90	3.91	6.61	6.07	10.26	5.60	4.28	15.33
sirrine	12-Jun-90	3.93	6.46	6.04	10.25	5.43	4.24	15.20
sirrine	10-Jul-90	3.68	6.16	5.81	10.14	5.27	3.81	14.70
sirrine	07-Aug-90	3.06	6.03	5.51	9.94	4.84	3.37	13.78
sirrine	06-Sep-90	2.49	5.83	5.39	9.59	4.45	2.86	13.50
sirrine	08-Oct-90	2.02	5.73	5.26	9.22	4.09	2.43	13.10
sirrine	05-Nov-90	2.01	5.70	5.88	8.95	3.84	2.44	13.12
brac	01-Jan-91							
sirrine	05-Feb-91	2.99	6.08	6.26	9.70	3.51	3.46	14.15
sirrine	10-Mar-91	4.99	8.23	8.41	13.30	7.01	5.66	16.20
brac	01-Apr-91							
brac	01-Jul-92							
Mon	13-Sep-93	2.14	6.04	5.26	9.74	4.76	2.48	13.78
Mon	13-Dec-93	3.32	7.04	6.40	10.15	4.61	3.89	15.53
Mon	22-Mar-94	4.86	8.23	6.77	11.26	7.11	5.29	16.41
Mon	01-Jun-94	3.75	10.43	7.78	11.54	5.94	4.87	15.88
Mon	19-Sep-94	3.19	7.46	8.16	10.94	6.57	4.23	14.50
unk	01-Nov-94							
Mon	01-Dec-94		8.45	8.29	10.80			16.49
Mon	04-Mar-95	2.17	8.21	8.16	10.84	6.49	5.15	16.86
unk	17-Mar-95							
Mon	01-Jun-95	2.22	8.19	8.03	10.72	6.36	5.12	16.08
POL	13-Jul-95							
unk?	24-Jul-95							
POL	11-Aug-95							
Mon	15-Sep-95	5.31	7.79	7.68	10.24	6.32	4.48	15.14
POL	18-Sep-95							
Mon	05-Dec-95	2.81	7.60	7.46	9.96	5.99	4.07	14.49
unk	15-May-96	4.04	7.97	7.91	10.47	6.53	5.19	16.48
Mon	17-Jun-96	3.61	7.80	7.78	10.38	6.35	4.89	16.14
Mon	01-Sep-96	2.83	7.61	7.46	10.06	6.04	4.11	14.62
Mon	01-Dec-96	3.32	7.58	7.54	9.79		4.62	16.16

## Groundwater Elevation Data for Selected Locations

Source	Date	MW-82d	MW-86	MW-86d	MW-87	MW-88	MW-88d	MW-89
Mon	20-Mar-97	3.77	7.81	7.76	10.11	6.34	5.02	16.35
navy?	28-May-97							
Mon	13-Jun-97	3.29	7.82	7.70	10.08	6.31	4.55	15.50
gsa2	01-Apr-98	4.06	7.86	7.87	10.17	6.24	5.24	16.81
gsa2	10-Jun-98	4.00	8.01	8.01	10.43	7.50	5.27	16.89
Mon	20-Jul-98	3.59	7.95	7.89	10.47	6.42	4.86	16.13
gsa2	15-Apr-99			8.41	10.98	6.70	5.63	
Mon	30-Aug-99	3.27	7.92	7.85				11.20
gsa2	14-Sep-99							
CH4	02-Dec-99							
gsa2	13-Dec-99							
CH4	27-Dec-99							
mw lf26	06-Jan-00							
gsa2	14-Mar-00							
mw lf26	29-Jun-00							
CH4	13-Jul-00	3.48	8.03	7.93				11.09
CH4	27-Jul-00	3.45	8.04	7.97				10.95
CH4	10-Aug-00	3.29	7.94	7.87				10.83
CH4	28-Aug-00	3.19	7.90	7.83				10.69
Mon+CH4	08-Sep-00	3.17	7.94	7.87	10.34			10.73
CH4	12-Oct-00	2.75	7.55	7.47	10.13			10.23
CH4	02-Nov-00	2.80	7.79	7.72	10.10			10.83
CH4	27-Nov-00	2.85	7.66	7.60	10.00			10.55
CH4	14-Dec-00	2.95	7.54	7.52	9.98	5.75		10.54

## Groundwater Elevation Data for Selected Locations

Source	Date	MW-L26-1	MW-POLA-118	MW-POLA-119	MW-SAC-93-1	Source	Date	PZ-9
SI - RI	01-Oct-85					SI - RI	01-Oct-85	
SI - RI	01-Dec-85					SI - RI	01-Dec-85	
SI - RI	01-Jan-86					SI - RI	01-Jan-86	
SI - RI	01-Feb-86					SI - RI	01-Feb-86	
SI - RI	01-Mar-86					SI - RI	01-Mar-86	
SI - RI	01-Jun-86					SI - RI	01-Jun-86	
SI - RI	01-Jul-86					SI - RI	01-Jul-86	
SI - RI	01-Aug-86					SI - RI	01-Aug-86	
SI - RI	01-Sep-86					SI - RI	01-Sep-86	
SI - RI	28-May-87					SI - RI	28-May-87	
SI - RI	29-Jun-87					SI - RI	29-Jun-87	
SI - RI	03-Aug-87					SI - RI	03-Aug-87	
SI - RI	31-Aug-87					SI - RI	31-Aug-87	
SI - RI	06-Oct-87					SI - RI	06-Oct-87	
SI - RI	03-Nov-87					SI - RI	03-Nov-87	
sirrine	20-Feb-90					sirrine	20-Feb-90	
SI - RI	28-Feb-90					SI - RI	28-Feb-90	
sirrine	16-Mar-90					sirrine	16-Mar-90	
sirrine	19-Apr-90					sirrine	19-Apr-90	
sirrine	15-May-90					sirrine	15-May-90	
sirrine	12-Jun-90					sirrine	12-Jun-90	
sirrine	10-Jul-90					sirrine	10-Jul-90	
sirrine	07-Aug-90					sirrine	07-Aug-90	
sirrine	06-Sep-90					sirrine	06-Sep-90	
sirrine	08-Oct-90					sirrine	08-Oct-90	
sirrine	05-Nov-90					sirrine	05-Nov-90	
brac	01-Jan-91					brac	01-Jan-91	
sirrine	05-Feb-91					sirrine	05-Feb-91	
sirrine	10-Mar-91					sirrine	10-Mar-91	
brac	01-Apr-91					brac	01-Apr-91	
brac	01-Jul-92					brac	01-Jul-92	
Mon	13-Sep-93			0.97		Mon	13-Sep-93	
Mon	13-Dec-93			3.73		Mon	13-Dec-93	
Mon	22-Mar-94			4.70		Mon	22-Mar-94	
Mon	01-Jun-94			3.56		Mon	01-Jun-94	
Mon	19-Sep-94			2.35		Mon	19-Sep-94	
unk	01-Nov-94					unk	01-Nov-94	
Mon	01-Dec-94			5.86		Mon	01-Dec-94	
Mon	04-Mar-95			5.56		Mon	04-Mar-95	
unk	17-Mar-95					unk	17-Mar-95	
Mon	01-Jun-95			4.61		Mon	01-Jun-95	
POL	13-Jul-95					POL	13-Jul-95	
unk?	24-Jul-95					unk?	24-Jul-95	
POL	11-Aug-95					POL	11-Aug-95	
Mon	15-Sep-95			2.49		Mon	15-Sep-95	
POL	18-Sep-95					POL	18-Sep-95	
Mon	05-Dec-95			3.01		Mon	05-Dec-95	
unk	15-May-96			4.70		unk	15-May-96	
Mon	17-Jun-96			4.11		Mon	17-Jun-96	
Mon	01-Sep-96			2.04		Mon	01-Sep-96	
Mon	01-Dec-96			5.55		Mon	01-Dec-96	

## Groundwater Elevation Data for Selected Locations

Source	Date	MW-L26-1	MW-POLA-118	MW-POLA-119	MW-SAC-93-1	Source	Date	PZ-9
Mon	20-Mar-97				5.33	Mon	20-Mar-97	
navy?	28-May-97					navy?	28-May-97	9.69
Mon	13-Jun-97				3.11	Mon	13-Jun-97	
gsa2	01-Apr-98					gsa2	01-Apr-98	10.74
gsa2	10-Jun-98					gsa2	10-Jun-98	10.64
Mon	20-Jul-98					Mon	20-Jul-98	
gsa2	15-Apr-99			14.22		gsa2	15-Apr-99	11.89
Mon	30-Aug-99	-0.33		11.80		Mon	30-Aug-99	9.58
gsa2	14-Sep-99					gsa2	14-Sep-99	9.67
CH4	02-Dec-99					CH4	02-Dec-99	
gsa2	13-Dec-99					gsa2	13-Dec-99	10.42
CH4	27-Dec-99					CH4	27-Dec-99	
mw lf26	06-Jan-00	-0.53				mw lf26	06-Jan-00	
gsa2	14-Mar-00					gsa2	14-Mar-00	11.79
mw lf26	29-Jun-00	0.40				mw lf26	29-Jun-00	
CH4	13-Jul-00			12.69		CH4	13-Jul-00	
CH4	27-Jul-00	0.06	9.06	12.61		CH4	27-Jul-00	9.66
CH4	10-Aug-00	-0.12	8.84	12.45		CH4	10-Aug-00	9.66
CH4	28-Aug-00	-0.29	8.59	12.22		CH4	28-Aug-00	9.56
Mon+CH4	08-Sep-00	-0.37	8.43	12.11		Mon+CH4	08-Sep-00	9.62
CH4	12-Oct-00	-0.89	7.83	11.56		CH4	12-Oct-00	9.63
CH4	02-Nov-00	-0.61	10.05	12.95		CH4	02-Nov-00	10.20
CH4	27-Nov-00	-0.69	9.66	12.64		CH4	27-Nov-00	10.23
CH4	14-Dec-00	-0.51	10.29	12.93		CH4	14-Dec-00	10.65

## Groundwater Elevation Data for Selected Locations

Source	Date	PZ-16	GMP-1	GMP-2	GMP-3	GMP-4	GMP-5	GMP-6	GMP-7
SI - RI	01-Oct-85								
SI - RI	01-Dec-85								
SI - RI	01-Jan-86								
SI - RI	01-Feb-86								
SI - RI	01-Mar-86								
SI - RI	01-Jun-86								
SI - RI	01-Jul-86								
SI - RI	01-Aug-86								
SI - RI	01-Sep-86								
SI - RI	28-May-87								
SI - RI	29-Jun-87								
SI - RI	03-Aug-87								
SI - RI	31-Aug-87								
SI - RI	06-Oct-87								
SI - RI	03-Nov-87								
sirrine	20-Feb-90								
SI - RI	28-Feb-90								
sirrine	16-Mar-90								
sirrine	19-Apr-90								
sirrine	15-May-90								
sirrine	12-Jun-90								
sirrine	10-Jul-90								
sirrine	07-Aug-90								
sirrine	06-Sep-90								
sirrine	08-Oct-90								
sirrine	05-Nov-90								
brac	01-Jan-91								
sirrine	05-Feb-91								
sirrine	10-Mar-91								
brac	01-Apr-91								
brac	01-Jul-92								
Mon	13-Sep-93								
Mon	13-Dec-93								
Mon	22-Mar-94								
Mon	01-Jun-94								
Mon	19-Sep-94								
unk	01-Nov-94								
Mon	01-Dec-94								
Mon	04-Mar-95								
unk	17-Mar-95								
Mon	01-Jun-95								
POL	13-Jul-95								
unk?	24-Jul-95	-3.54	-2.22	-2.86	-2.38				
POL	11-Aug-95								
Mon	15-Sep-95								
POL	18-Sep-95								
Mon	05-Dec-95								
unk	15-May-96								
Mon	17-Jun-96	-0.11	-0.13	0.21	0.99	2.08	7.91	10.67	
Mon	01-Sep-96								
Mon	01-Dec-96								

## Groundwater Elevation Data for Selected Locations

Source	Date	PZ-16	GMP-1	GMP-2	GMP-3	GMP-4	GMP-5	GMP-6	GMP-7
Mon	20-Mar-97								
navy?	28-May-97	3.15							
Mon	13-Jun-97								
gsa2	01-Apr-98	5.26	1.64	1.11	1.45	1.01	2.46	8.91	11.20
gsa2	10-Jun-98	5.30	1.59	1.02	1.30	1.05	2.48	9.10	11.35
Mon	20-Jul-98								
gsa2	15-Apr-99	6.56							
Mon	30-Aug-99	2.91					2.12	6.48	10.10
gsa2	14-Sep-99	3.25							
CH4	02-Dec-99		-2.04	-0.32	-0.36	0.52	2.80	8.45	10.57
gsa2	13-Dec-99	4.85							
CH4	27-Dec-99		-2.14	-0.52	-0.46	0.02	2.20	7.95	10.37
mw lf26	06-Jan-00								
gsa2	14-Mar-00	6.61							
mw lf26	29-Jun-00								
CH4	13-Jul-00						2.28	7.62	10.55
CH4	27-Jul-00						2.21	7.44	10.47
CH4	10-Aug-00						2.13	7.17	10.35
CH4	28-Aug-00						2.05	6.87	10.21
Mon+CH4	08-Sep-00	3.41					2.00	6.68	10.12
CH4	12-Oct-00						1.76	5.99	9.70
CH4	02-Nov-00						2.52	8.33	10.51
CH4	27-Nov-00						2.02	7.92	10.42
CH4	14-Dec-00	5.01					2.50	8.57	11.34

## Groundwater Elevation Data for Selected Locations

Source	Date	GMP-8	GMP-9	GMP-10	GMP-11	GMP-12	GMP-13	GMP-14	GMP-15
SI - RI	01-Oct-85								
SI - RI	01-Dec-85								
SI - RI	01-Jan-86								
SI - RI	01-Feb-86								
SI - RI	01-Mar-86								
SI - RI	01-Jun-86								
SI - RI	01-Jul-86								
SI - RI	01-Aug-86								
SI - RI	01-Sep-86								
SI - RI	28-May-87								
SI - RI	29-Jun-87								
SI - RI	03-Aug-87								
SI - RI	31-Aug-87								
SI - RI	06-Oct-87								
SI - RI	03-Nov-87								
sirrine	20-Feb-90								
SI - RI	28-Feb-90								
sirrine	16-Mar-90								
sirrine	19-Apr-90								
sirrine	15-May-90								
sirrine	12-Jun-90								
sirrine	10-Jul-90								
sirrine	07-Aug-90								
sirrine	06-Sep-90								
sirrine	08-Oct-90								
sirrine	05-Nov-90								
brac	01-Jan-91								
sirrine	05-Feb-91								
sirrine	10-Mar-91								
brac	01-Apr-91								
brac	01-Jul-92								
Mon	13-Sep-93								
Mon	13-Dec-93								
Mon	22-Mar-94								
Mon	01-Jun-94								
Mon	19-Sep-94								
unk	01-Nov-94								
Mon	01-Dec-94								
Mon	04-Mar-95								
unk	17-Mar-95								
Mon	01-Jun-95								
POL	13-Jul-95								
unk?	24-Jul-95					7.88	12.33	11.53	7.97
POL	11-Aug-95								
Mon	15-Sep-95								
POL	18-Sep-95								
Mon	05-Dec-95								
unk	15-May-96								
Mon	17-Jun-96	14.75	18.29	17.42	18.73	14.51	14.00	13.72	11.43
Mon	01-Sep-96								
Mon	01-Dec-96								

## Groundwater Elevation Data for Selected Locations

Source	Date	GMP-8	GMP-9	GMP-10	GMP-11	GMP-12	GMP-13	GMP-14	GMP-15
Mon	20-Mar-97								
navy?	28-May-97								
Mon	13-Jun-97								
gsa2	01-Apr-98	15.82	19.85	18.67	19.93	15.47	15.00	14.69	12.38
gsa2	10-Jun-98	16.13	19.62	18.85	20.14	15.57	15.01	14.72	12.34
Mon	20-Jul-98								
gsa2	15-Apr-99								
Mon	30-Aug-99	14.48	17.63	16.74	18.11	15.04	14.01	13.51	
gsa2	14-Sep-99								
CH4	02-Dec-99	14.50	16.20	16.00	17.70	15.80	14.90	14.60	12.37
gsa2	13-Dec-99								
CH4	27-Dec-99	14.60	16.30	16.90	18.00	15.50	14.40	14.10	11.97
mw lf26	06-Jan-00								
gsa2	14-Mar-00								
mw lf26	29-Jun-00								
CH4	13-Jul-00	15.16	17.98	16.78	17.76	15.08	13.97	13.71	
CH4	27-Jul-00	15.10	17.89	16.68	17.67	15.04	13.90	13.63	
CH4	10-Aug-00	14.92	17.67	16.48	17.43	14.89	13.81	13.58	
CH4	28-Aug-00	14.74	16.99	16.29	17.29	14.76	13.66	13.43	
Mon+CH4	08-Sep-00	14.67	16.45	16.29	17.22	14.83	13.70	13.50	
CH4	12-Oct-00	14.09	15.59	15.77	16.85	14.30	13.42	13.48	
CH4	02-Nov-00	14.71	19.51	15.78	16.87	14.93	14.00	14.23	
CH4	27-Nov-00	14.66	17.94	15.85	16.95	14.62	13.73	13.80	
CH4	14-Dec-00	14.70	20.67	15.91	17.09	14.52	13.90	15.44	

## Groundwater Elevation Data for Selected Locations

Source	Date	GMP-16	GMP-17	Source	Date	GMP-18	GMP-19	GMP-20
SI - RI	01-Oct-85			SI - RI	01-Oct-85			
SI - RI	01-Dec-85			SI - RI	01-Dec-85			
SI - RI	01-Jan-86			SI - RI	01-Jan-86			
SI - RI	01-Feb-86			SI - RI	01-Feb-86			
SI - RI	01-Mar-86			SI - RI	01-Mar-86			
SI - RI	01-Jun-86			SI - RI	01-Jun-86			
SI - RI	01-Jul-86			SI - RI	01-Jul-86			
SI - RI	01-Aug-86			SI - RI	01-Aug-86			
SI - RI	01-Sep-86			SI - RI	01-Sep-86			
SI - RI	28-May-87			SI - RI	28-May-87			
SI - RI	29-Jun-87			SI - RI	29-Jun-87			
SI - RI	03-Aug-87			SI - RI	03-Aug-87			
SI - RI	31-Aug-87			SI - RI	31-Aug-87			
SI - RI	06-Oct-87			SI - RI	06-Oct-87			
SI - RI	03-Nov-87			SI - RI	03-Nov-87			
sirrine	20-Feb-90			sirrine	20-Feb-90			
SI - RI	28-Feb-90			SI - RI	28-Feb-90			
sirrine	16-Mar-90			sirrine	16-Mar-90			
sirrine	19-Apr-90			sirrine	19-Apr-90			
sirrine	15-May-90			sirrine	15-May-90			
sirrine	12-Jun-90			sirrine	12-Jun-90			
sirrine	10-Jul-90			sirrine	10-Jul-90			
sirrine	07-Aug-90			sirrine	07-Aug-90			
sirrine	06-Sep-90			sirrine	06-Sep-90			
sirrine	08-Oct-90			sirrine	08-Oct-90			
sirrine	05-Nov-90			sirrine	05-Nov-90			
brac	01-Jan-91			brac	01-Jan-91			
sirrine	05-Feb-91			sirrine	05-Feb-91			
sirrine	10-Mar-91			sirrine	10-Mar-91			
brac	01-Apr-91			brac	01-Apr-91			
brac	01-Jul-92			brac	01-Jul-92			
Mon	13-Sep-93			Mon	13-Sep-93			
Mon	13-Dec-93			Mon	13-Dec-93			
Mon	22-Mar-94			Mon	22-Mar-94			
Mon	01-Jun-94			Mon	01-Jun-94			
Mon	19-Sep-94			Mon	19-Sep-94			
unk	01-Nov-94			unk	01-Nov-94			
Mon	01-Dec-94			Mon	01-Dec-94			
Mon	04-Mar-95			Mon	04-Mar-95			
unk	17-Mar-95			unk	17-Mar-95			
Mon	01-Jun-95			Mon	01-Jun-95			
POL	13-Jul-95			POL	13-Jul-95			
unk?	24-Jul-95	1.54	3.92	unk?	24-Jul-95	1.46	-2.07	-6.37
POL	11-Aug-95			POL	11-Aug-95			
Mon	15-Sep-95			Mon	15-Sep-95			
POL	18-Sep-95			POL	18-Sep-95			
Mon	05-Dec-95			Mon	05-Dec-95			
unk	15-May-96			unk	15-May-96			
Mon	17-Jun-96	9.87	8.60	Mon	17-Jun-96	6.28	4.42	3.60
Mon	01-Sep-96			Mon	01-Sep-96			
Mon	01-Dec-96			Mon	01-Dec-96			

## Groundwater Elevation Data for Selected Locations

Source	Date	GMP-16	GMP-17	Source	Date	GMP-18	GMP-19	GMP-20
Mon	20-Mar-97			Mon	20-Mar-97			
navy?	28-May-97			navy?	28-May-97			
Mon	13-Jun-97			Mon	13-Jun-97			
gsa2	01-Apr-98		9.21	gsa2	01-Apr-98	6.99	5.58	
gsa2	10-Jun-98		9.29	gsa2	10-Jun-98	7.14	5.60	
Mon	20-Jul-98			Mon	20-Jul-98			
gsa2	15-Apr-99			gsa2	15-Apr-99			
Mon	30-Aug-99			Mon	30-Aug-99			
gsa2	14-Sep-99			gsa2	14-Sep-99			
CH4	02-Dec-99	10.44	9.22	CH4	02-Dec-99	7.06	5.68	4.23
gsa2	13-Dec-99			gsa2	13-Dec-99			
CH4	27-Dec-99	10.44	9.12	CH4	27-Dec-99	6.96	5.68	4.43
mw lf26	06-Jan-00			mw lf26	06-Jan-00			
gsa2	14-Mar-00			gsa2	14-Mar-00			
mw lf26	29-Jun-00			mw lf26	29-Jun-00			
CH4	13-Jul-00			CH4	13-Jul-00			
CH4	27-Jul-00			CH4	27-Jul-00			
CH4	10-Aug-00			CH4	10-Aug-00			
CH4	28-Aug-00			CH4	28-Aug-00			
Mon+CH4	08-Sep-00			Mon+CH4	08-Sep-00			
CH4	12-Oct-00			CH4	12-Oct-00			
CH4	02-Nov-00			CH4	02-Nov-00			
CH4	27-Nov-00			CH4	27-Nov-00			
CH4	14-Dec-00			CH4	14-Dec-00			

## Groundwater Elevation Data for Selected Locations

Source	Date	GMP-21	GMP-22	GMP-23	EW-91-1	EW-91-2	EW-91-3	EW-91-4	EW-91-5
SI - RI	01-Oct-85								
SI - RI	01-Dec-85								
SI - RI	01-Jan-86								
SI - RI	01-Feb-86								
SI - RI	01-Mar-86								
SI - RI	01-Jun-86								
SI - RI	01-Jul-86								
SI - RI	01-Aug-86								
SI - RI	01-Sep-86								
SI - RI	28-May-87								
SI - RI	29-Jun-87								
SI - RI	03-Aug-87								
SI - RI	31-Aug-87								
SI - RI	06-Oct-87								
SI - RI	03-Nov-87								
sirrine	20-Feb-90								
SI - RI	28-Feb-90								
sirrine	16-Mar-90								
sirrine	19-Apr-90								
sirrine	15-May-90								
sirrine	12-Jun-90								
sirrine	10-Jul-90								
sirrine	07-Aug-90								
sirrine	06-Sep-90								
sirrine	08-Oct-90								
sirrine	05-Nov-90								
brac	01-Jan-91								
sirrine	05-Feb-91								
sirrine	10-Mar-91								
brac	01-Apr-91								
brac	01-Jul-92								
Mon	13-Sep-93								
Mon	13-Dec-93								
Mon	22-Mar-94								
Mon	01-Jun-94								
Mon	19-Sep-94								
unk	01-Nov-94			7.95	11.06	3.09	4.86	4.72	
Mon	01-Dec-94								
Mon	04-Mar-95								
unk	17-Mar-95			8.66	10.97	3.03	4.38	5.07	
Mon	01-Jun-95								
POL	13-Jul-95								
unk?	24-Jul-95								
POL	11-Aug-95								
Mon	15-Sep-95								
POL	18-Sep-95								
Mon	05-Dec-95			12.26	10.14	3.51	3.61	4.31	
unk	15-May-96								
Mon	17-Jun-96	2.65	0.63	0.52	12.72	10.60	4.77	4.75	5.04
Mon	01-Sep-96				12.06	10.14	3.89	3.45	4.27
Mon	01-Dec-96				11.96	10.27	4.65	4.20	4.81

## Groundwater Elevation Data for Selected Locations

Source	Date	GMP-21	GMP-22	GMP-23	EW-91-1	EW-91-2	EW-91-3	EW-91-4	EW-91-5
Mon	20-Mar-97				13.08	10.63	4.96	4.59	5.19
navy?	28-May-97								
Mon	13-Jun-97				12.42	10.65	4.31	3.90	4.72
gsa2	01-Apr-98		2.95	2.06					
gsa2	10-Jun-98		2.26	2.01					
Mon	20-Jul-98								
gsa2	15-Apr-99								
Mon	30-Aug-99								
gsa2	14-Sep-99								
CH4	02-Dec-99	4.80	3.00	2.00					
gsa2	13-Dec-99								
CH4	27-Dec-99	4.90	3.00	1.40					
mw lf26	06-Jan-00								
gsa2	14-Mar-00								
mw lf26	29-Jun-00								
CH4	13-Jul-00								
CH4	27-Jul-00								
CH4	10-Aug-00								
CH4	28-Aug-00								
Mon+CH4	08-Sep-00								
CH4	12-Oct-00								
CH4	02-Nov-00								
CH4	27-Nov-00								
CH4	14-Dec-00								

## Groundwater Elevation Data for Selected Locations

Source	Date	EW-91-6	EW-91-7	EW-91-8	EW-91-9	EW-91-10	EW-91-11	EW-91-12	EW-91-13
SI - RI	01-Oct-85								
SI - RI	01-Dec-85								
SI - RI	01-Jan-86								
SI - RI	01-Feb-86								
SI - RI	01-Mar-86								
SI - RI	01-Jun-86								
SI - RI	01-Jul-86								
SI - RI	01-Aug-86								
SI - RI	01-Sep-86								
SI - RI	28-May-87								
SI - RI	29-Jun-87								
SI - RI	03-Aug-87								
SI - RI	31-Aug-87								
SI - RI	06-Oct-87								
SI - RI	03-Nov-87								
sirrine	20-Feb-90								
SI - RI	28-Feb-90								
sirrine	16-Mar-90								
sirrine	19-Apr-90								
sirrine	15-May-90								
sirrine	12-Jun-90								
sirrine	10-Jul-90								
sirrine	07-Aug-90								
sirrine	06-Sep-90								
sirrine	08-Oct-90								
sirrine	05-Nov-90								
brac	01-Jan-91								
sirrine	05-Feb-91								
sirrine	10-Mar-91								
brac	01-Apr-91								
brac	01-Jul-92								
Mon	13-Sep-93								
Mon	13-Dec-93								
Mon	22-Mar-94								
Mon	01-Jun-94								
Mon	19-Sep-94								
unk	01-Nov-94	3.40	4.22	1.94	4.69	3.84	5.48	5.80	7.70
Mon	01-Dec-94								
Mon	04-Mar-95								
unk	17-Mar-95	2.32	-10.57	1.51	-0.61	3.01	4.93	5.53	8.15
Mon	01-Jun-95								
POL	13-Jul-95								
unk?	24-Jul-95								
POL	11-Aug-95								
Mon	15-Sep-95								
POL	18-Sep-95								
Mon	05-Dec-95	4.40	3.56	3.07	4.09	2.15	4.91	4.84	8.24
unk	15-May-96								
Mon	17-Jun-96	5.18	4.48	3.91	4.05	3.16	5.26	5.53	8.56
Mon	01-Sep-96	4.38	3.66	3.10	4.00	2.25	5.17	4.72	8.23
Mon	01-Dec-96	4.87	4.14	3.63	3.59	2.73	5.07	5.38	8.20

## Groundwater Elevation Data for Selected Locations

Source	Date	EW-91-6	EW-91-7	EW-91-8	EW-91-9	EW-91-10	EW-91-11	EW-91-12	EW-91-13
Mon	20-Mar-97	5.26	4.54	4.06	3.57	3.26	5.46	5.61	8.52
navy?	28-May-97								
Mon	13-Jun-97	5.18	4.06	3.53	3.73	2.69	5.63	5.11	8.48
gsa2	01-Apr-98								
gsa2	10-Jun-98								
Mon	20-Jul-98								
gsa2	15-Apr-99								
Mon	30-Aug-99								
gsa2	14-Sep-99								
CH4	02-Dec-99								
gsa2	13-Dec-99								
CH4	27-Dec-99								
mw lf26	06-Jan-00								
gsa2	14-Mar-00								
mw lf26	29-Jun-00								
CH4	13-Jul-00								
CH4	27-Jul-00								
CH4	10-Aug-00								
CH4	28-Aug-00								
Mon+CH4	08-Sep-00								
CH4	12-Oct-00								
CH4	02-Nov-00								
CH4	27-Nov-00								
CH4	14-Dec-00								

## Groundwater Elevation Data for Selected Locations

Source	Date	
SI - RI	01-Oct-85	
SI - RI	01-Dec-85	
SI - RI	01-Jan-86	
SI - RI	01-Feb-86	
SI - RI	01-Mar-86	
SI - RI	01-Jun-86	
SI - RI	01-Jul-86	
SI - RI	01-Aug-86	
SI - RI	01-Sep-86	
SI - RI	28-May-87	
SI - RI	29-Jun-87	
SI - RI	03-Aug-87	
SI - RI	31-Aug-87	
SI - RI	06-Oct-87	
SI - RI	03-Nov-87	
sirrine	20-Feb-90	
SI - RI	28-Feb-90	
sirrine	16-Mar-90	
sirrine	19-Apr-90	
sirrine	15-May-90	
sirrine	12-Jun-90	
sirrine	10-Jul-90	
sirrine	07-Aug-90	
sirrine	06-Sep-90	
sirrine	08-Oct-90	
sirrine	05-Nov-90	
brac	01-Jan-91	
sirrine	05-Feb-91	
sirrine	10-Mar-91	
brac	01-Apr-91	
brac	01-Jul-92	
Mon	13-Sep-93	
Mon	13-Dec-93	
Mon	22-Mar-94	
Mon	01-Jun-94	
Mon	19-Sep-94	
unk	01-Nov-94	
Mon	01-Dec-94	
Mon	04-Mar-95	
unk	17-Mar-95	
Mon	01-Jun-95	
POL	13-Jul-95	
unk?	24-Jul-95	
POL	11-Aug-95	
Mon	15-Sep-95	
POL	18-Sep-95	
Mon	05-Dec-95	
unk	15-May-96	
Mon	17-Jun-96	
Mon	01-Sep-96	
Mon	01-Dec-96	

## Groundwater Elevation Data for Selected Locations

Source	Date	EW-91-14
Mon	20-Mar-97	
navy?	28-May-97	
Mon	13-Jun-97	
gsa2	01-Apr-98	
gsa2	10-Jun-98	
Mon	20-Jul-98	
gsa2	15-Apr-99	
Mon	30-Aug-99	
gsa2	14-Sep-99	
CH4	02-Dec-99	
gsa2	13-Dec-99	
CH4	27-Dec-99	
mw lf26	06-Jan-00	
gsa2	14-Mar-00	
mw lf26	29-Jun-00	
CH4	13-Jul-00	
CH4	27-Jul-00	
CH4	10-Aug-00	
CH4	28-Aug-00	
Mon+CH4	08-Sep-00	
CH4	12-Oct-00	
CH4	02-Nov-00	
CH4	27-Nov-00	
CH4	14-Dec-00	

**APPENDIX D**

**Landfill Gas Generation Model**

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## **APPENDIX D**

# **Landfill Gas Generation Model**

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For this study, CH2M HILL ran its Municipal Solid Waste Landfill Gas Generation Model. Methods and assumptions are summarized in this appendix. The CH2M HILL model has been found to yield results similar to other landfill gas generation rate estimation models reported in the literature (CH2M HILL, 1998g). The output of the Model for Landfill 26 is located at the end of this appendix.

## **Assumptions**

The following assumptions were listed in Section 3.3.1 of the document text.

- First year waste was placed: 1942
- Last year waste was placed: 1973
- Waste placement occurred on a uniform basis throughout life of the landfill
- Total waste volume: 151,500 cubic yards
- In-place waste density: 1,200 lb/cubic yard
- Moisture content of waste: 55 percent
- Organic fraction of total waste, wet basis: 62 percent
- Readily decomposable fraction of waste: 24 percent
- Moderately decomposable fraction of waste: 70 percent

## **Landfill Operation Assumptions**

The Draft Landfill Gas Migration Study (DLFGMS; ITSI, 2001) indicates that the first waste was placed in the early 1940s; 1942 was chosen for the model. The DLFGMS also indicates that waste was placed through the early 1970s and that the site has been inactive since 1974; 1973 was chosen as the last year waste was placed. Because no landfill operational data were available, it was assumed that waste placement occurred on a uniform basis throughout the life of the landfill.

## **Waste Volume Assumption**

The DLFGMS (ITSI, 2001) states that the total volume of refuse was estimated by WCC to be 151,500 cubic yards. A typical in-place waste density for MSW landfills is 1,200 lb/cubic yard. Waste densities can be as high as 2,000 lb/cubic yard; however, this would be with a large soil and debris component and a high degree of compaction. It is unlikely that much, if any, compaction occurred at Landfill 26, and the volume of refuse is assumed to include debris, but not soil.

## Waste Characteristics Assumptions

Refuse in landfills typically has a moisture content between 20 and 60 percent by volume (CH2M HILL, 1998g). A moisture content of 55 percent by volume was chosen for the model, given the following considerations. The water table at Landfill 26 is located at the mid-section of the waste through much of the landfill. Therefore, 40-50 percent of the waste is saturated with water, and is assumed to have a moisture content of at least 60 percent. The remaining waste has been capped with a geomembrane since 1995. Because the geomembrane keeps water from infiltrating the landfill, the waste above the water table is likely relatively dry, or 30 to 35 percent moisture content. Prior to cap construction, because rainwater infiltrated through the waste, it is likely that the moisture content of wastes above the water table was much higher, perhaps 50 to 55 percent.

Other assumptions were made about the waste characteristics based on trench logs from the 1986 WCC Preliminary Investigation in the *Summary Technical Report* (WCC, 1997). In a typical municipal solid waste landfill, it is assumed that 71 percent of refuse is biodegradable, and 29 percent is inert (concrete, rebar, metal, brick, glass, plastic). Because debris was placed in Landfill 26, a higher inert fraction, 38 percent or (62 percent organic fraction), was chosen for the model.

The trenching logs indicated a large percentage of wood in the landfill. Wood was found in nearly every trench. From limited information in the trenching logs, the organic fraction of the refuse was estimated to contain 30 percent wood. Wood material is moderately degradable. The remaining 70 percent of the organic fraction was modeled to reflect typical municipal solid waste characteristics (61 percent moderately degradable and 35 percent readily degradable). From these assumptions, the approximate readily degradable portion of the organic fraction of refuse was calculated to be 24 percent and the moderately degradable portion to be 70 percent. The remaining 6 percent is the non-degradable portion of the organic material.

**APPENDIX E**

**Shea Homes Data**

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# Fax

To: Cathy Patton From: James P. McAlister - 916.557.7401

Fax: 920 8463 Date: 28 Mar 01

Phone: \_\_\_\_\_ Pages: \_\_\_\_\_

Re: Hamilton LF26 CC: \_\_\_\_\_

Urgent     For Review     Please Comment     Please Reply     Please Recycle

Comments:

*Shen Home Data*

# SheaHomes

2580 Shea Center Drive, Livermore, California 94550 Tel: 925-245-3600

---

## FAXSIMILIE COVERSHEET

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TO: FROM:

Dan Ward, DTSC  
Theresa McGarry, DTSC  
FAX: 916-265-3734  
Jim Ponton, RWQCB  
Dennis Mishek, RWQCB  
FAX: 510-622-2460  
Cynthia Barnard, MCEHS  
Mark Janofsky, MCEHS  
FAX: 415-507-4120  
Mike Wochnick, IWMB  
Gino Yetka, IWMB  
FAX: 916-255-3696  
Jim McAlister, ACE  
T. Vincent, ACE  
FAX: 916-557-7850  
Ray Seid, USEPA  
FAX: 415-744-1917  
Joe Coomes, MH&A  
FAX: 916-444-8326  
Ken Bell, Robert Bein William Frost  
FAX: (949) 837-4122  
Wally Bobkiewicz, City of Novato  
FAX: 415-899-1487

Eric T. Keller ~~SMK~~  
Development Manager

DATE: WEDNESDAY, MARCH 21, 2001  
PHONE NUMBER: 925-245-3600  
FAX NUMBER: 925-245-8833

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NUMBER OF SHEETS (INCLUDING COVER):  
10

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PROJECT: RE:  
Hamilton Meadows Preliminary Methane Gas Sampling Results

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URGENT  FOR REVIEW  PLEASE COMMENT  PLEASE REPLY  PLEASE RECYCLE

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NOTES/COMMENTS:

Below are three attachments for your review. They are as follows:

- Letter to Dan Ward regarding Methane Gas Sampling Results for the Sunnycove Development.
- Letter to Hamilton Meadows Homeowner disclosing the Methane Gas Sampling Results for the Sunnycove Development.
- Methane Probe Application and results with Maps indicating location of probes and preliminary methane gas sampling results.

Should any of you have questions regarding these attachments, please contact Thom Gamble or Laura Herse via e-mail, and they will get back to as soon as they can.

# SheaHomes

*Caring since 1881*

March 21, 2001

VIA FACSIMILE

Mr. Daniel Ward  
Department of Toxic Substances Control  
California EPA Region 1  
Base Closure Branch  
10151 Croydon Way, Suite 3  
Sacramento, CA 95827

Subject: Methane Gas Sampling Results - Sunny Cove Development  
Hamilton Meadows, Novato, California

Dear Dan:

On March 16, 2001, Shea Homes installed nineteen (19) soil gas-monitoring probes on our Sunny Cove development at Hamilton Meadows in Novato, California. As shown on the attached map, these probes are located on Shea's property (Lots 156-174) approximately 3 to 5 feet from the development's property line bordering the buffer zone associated with Landfill 26.

As the enclosed data indicates, methane was detected in the field measurements taken at 18 of the 19 probes. At one of these probes, methane was detected at 4.8% by volume. There is no longer any question regarding the need for the U.S. Army Corps of Engineers (Corps) to undertake immediate remedial action pursuant to the *Landfill 26 Final Closure and Post-Closure Maintenance Plan* (June 1999). Therefore, we reiterate our previous request for your (and other state and local regulatory agencies') assistance in getting the Corps to undertake such action.

Furthermore, to ensure that our home buyers are appropriately informed and adequately protected, Shea would like to install eleven (11) additional soil gas monitoring probes on those lots (Lots 22-32) that border the buffer zone at our Newport development in the near future. Shea is currently preparing a work plan for the installation of these additional probes, which will be submitted for prior approval to DTSC, the Regional Water Quality Control Board, the U.S. Navy, the Corps and the U.S. Environmental Protection Agency as required by the *Covenant to Restrict Use of Property, Environmental Restriction* (September 1999). We would appreciate any assistance that you (and the other agencies) can provide in order to get this work plan approved as soon as possible.

Mr. Daniel Ward  
Methane Gas Sampling Results  
March 21, 2001  
Page 2

This afternoon, Shea will inform our homeowners of the attached methane sampling results. We have enclosed, for your information, a copy of the letter that will be hand-delivered to each homeowner by a Shea representative later today. In addition, Shea will also be submitting a more detailed report of the March 16<sup>th</sup> drilling activities on the Sunny Cove property to the regulatory agencies in the near future.

Sincerely,

Shea Homes



Layne Marceau  
President

Enclosures

cc: T. McGarry, DTSC  
Jim Ponton, RWQCB  
M. Wochnick, CIWMB  
G. Yetka, CIWMB  
C. Barnard, MCEHS  
M. Janofsky, MCEHS  
J. McAlister, USACE  
T. Vincent, USACE  
Ray Seid, USEPA  
Ken Bell, RBF Consultants  
Wally Bobkiewicz, City of Novato  
Joe Coomes, McDonald, Holland & Allen

# SheaHomes

*Caring since 1881*

March 21, 2001

Robert Chang  
Brenda Lau

Novato CA 94949

Dear Robert Chang and Brenda Lau:

As discussed at our community meeting on March 15, 2001, our consultants, Methane Specialists, installed monitoring probes on 19 lots (156-174) adjacent to the Landfill 26 Border Zone last week. This week we received preliminary results from the field measurements taken at these probes. These results indicate the presence of methane on 18 of these lots. We have not had the opportunity to review and discuss these results with Methane Specialists, and we want to stress that they are preliminary, however, we are providing them to you today in light of our commitment to release these results as soon as we received them.

Attached to this letter is a map which depicts the location of each probe and the preliminary methane reading, percentage by volume, at the probe. As you will see, eleven of these readings were below one percent, six were above one percent but below two percent and one reading was at four and eight tenths of one percent. Although these results are all below the Lower Explosive Limit (the "LEL" that Mr. Speich discussed) further testing is called for and will take place. We have also noted on the maps the homes where methane gas sweeps took place on March 1, 2001. As we reported at our meeting on March 15<sup>th</sup>, none of these sweeps detected the presence of methane gas. As you know, one of these sweeps was of an occupied home at the request of the homeowner. If any other homeowner desires to have their home checked for the presence of methane gas, we continue to be willing to make this service available. A technician will be at Hamilton Meadows on March 28, 2001. If you would like your home checked, please notify Susan Barnes by March 23, 2001, and she will arrange for this testing to take place.

In the next two weeks, we expect to have further probe data and the Army will have released a draft copy of their methane mitigation plan. In order to provide timely information to you, our next meeting, currently scheduled for April 25<sup>th</sup>, will be rescheduled to the week of April 9, 2001. You will be informed of the new date as soon as possible. In the meanwhile, if you have any questions we would ask that you contact Susan Barnes, at 415 382-9741. Of course, we will continue to make new information available to you regarding this developing situation, either on the proposed web site or through direct correspondence.

We also hope that you will be able to attend the Hamilton Army Airfield Restoration Advisory Board ("RAB") meeting, scheduled for March 28, 2001, at 7 p.m., as this will provide you with another opportunity to obtain information and hear, first hand, from the Army about their plans to resolve this problem. This meeting was originally scheduled to be held at City Hall. The new location, at the Novato Unified School District Offices, at 7<sup>th</sup> and Grant, has not been confirmed by the Navy. We will inform you of the actual location as soon as we receive confirmation.

Sincerely,

SHEA HOMES



Layne Marceau  
President

03/09/2001 10:49 7878695094

CLEAR HEART DRILLING

PAGE 01/01

COMMUNITY DEVELOPMENT AGENCY  
ENVIRONMENTAL HEALTH  
3501 CIVIC CENTER DRIVE, ROOM 236  
SAN RAFAEL, CA 94903  
415-4996907 FAX: 415-587-4120

OFFICE USE ONLY
Fax # _____
Receipt # _____
Date _____
Received by _____
PERMIT # _____

**APPLICATION (check appropriate type) NUMBER OF WELLS FOR APPLICATION**

- Drill Domestic Water Well       Construct Monitoring Well       Install Cathodic Protection Well  
 Drill Nonresidential Water Well       Well Destruction       Soil Bore/Test Holes  
 Operate Domestic Water Supply       Repairs/Upgrades      Number of holes to be drilled 19

**OWNER'S NAME:** SHEA HOMES**Mailing Address:** 2580 SHEA CENTER DR.  
LIVERMORE, CALIFORNIA Zip 94550**Telephone:** 925-246-3680**WELL DRILLER:** ClearHeart Drilling**Mailing Address:** 483 W College Ave.  
Dent Rada, CA Zip 95201**Phone:** (707) 568-6095 **Fax:** (707) 568-6095**C-87 #:** 780357**Marin County Business License required in unincorporated area of Marin County:****License #:** 018044 **Exp. Date:** 6/30/01**Completed/Approved by:** Septic Assoc./Methane Specialists**Well will serve a single residence? Yes \_\_\_\_\_ No \_\_\_\_\_ If no, please describe \_\_\_\_\_****Sewage Facilities: Septic System \_\_\_\_\_ Distance to well \_\_\_\_\_ feet****Public Sewer \_\_\_\_\_ Distance to well \_\_\_\_\_ feet Building sewer lateral material \_\_\_\_\_ Distance to well \_\_\_\_\_ feet****This water supply will be used as a potable water source. Yes \_\_\_\_\_ No \_\_\_\_\_ Scaled site plan attached \_\_\_\_\_****Completed/Approved by:** Septic Assoc./Methane Specialists**1. Flow tests completed - date: \_\_\_\_\_ 2. Bacteriological test date: \_\_\_\_\_ 3. Chemical analysis date: \_\_\_\_\_****4. Well drillers report number: \_\_\_\_\_ 5. Water storage, Gals.: \_\_\_\_\_****Completed/Approved by:** Septic Assoc./Methane Specialists**Reason for installing monitoring wells:** Landfill leachate migration**NOTE: All monitoring wells must be installed in accordance with all environmental regulations.****Completed/Approved by:** Septic Assoc./Methane Specialists**Distance to street sewer maine \_\_\_\_\_ feet Underground tanks \_\_\_\_\_ feet Distance to building sewer laterals \_\_\_\_\_ feet****Completed/Approved by:** Septic Assoc./Methane Specialists**Reason for drilling activity: LANDFILL GAS MIGRATION ASSESSMENT.****Scaled site plan: Indicating position of each bore to be drilled attached.****Completed/Approved by:** Septic Assoc./Methane Specialists**Type of well: Domestic \_\_\_\_\_ Agricultural \_\_\_\_\_ Monitoring \_\_\_\_\_ Cathodic Protection \_\_\_\_\_ Other (describe) \_\_\_\_\_****Reason for destroying well: Abandoned \_\_\_\_\_ Hazardous \_\_\_\_\_ No Yield \_\_\_\_\_ No Longer Needed: \_\_\_\_\_****Monitoring wells must follow standards as described in the California Well Standards Bulletin 74-90, and the California Code of Regulations, Title 25, Sections 23-2643, 23-2647 and 23-2846. All wells to be drilled or destroyed according to the procedures outlined in the State of California Well Standards Bulletin 74-81, Chapter II, Part III, Section 23. Cathodic protection wells must follow standards as described in the California Well Standards Bulletin 74-90.****Signed by:** DAVID L. LUCEROMETHANE SPECIALISTS**Date:** 3/9/01

**COUNTY OF MARIN  
ENVIRONMENTAL HEALTH SERVICES**

Community Development Agency

3501 Civic Center Drive, Rm. 336  
San Rafael, CA 94903  
(415) 499-6927, FAX (415) 507-4130  
[www.marin.org/sha](http://www.marin.org/sha)

**PERMIT FOR TEST HOLE / SOIL BORE ACTIVITY**

Date of Issuance: March 13, 2001  
Permit Expiration: September 13, 2001

To: Shea Homes  
2580 Shea Center Drive  
Livermore, CA 94550

Permit No.: TH00/01-47 (19)

Street Address: Hamilton Meadows, Sunny Cove  
Dev. Lots 168-174  
City: Novato

APN: Parcel 4B

Your application and plans have been reviewed for compliance with relevant California State and Marin County regulations. Permission is hereby granted to perform the stated work at the above designated site.

The C-67 contractor shall notify this office of the day the project will begin and the time proposed for grout placement. Construction and destruction criteria shall meet all applicable sections of the current State of California Water Well Standards Bulletin 74 (as revised).

This permit is valid for six months from the date of issuance. If work has not commenced prior to the expiration date an additional application and the associated fee shall be required.

# holes to be drilled nineteen (19)

Project Completed \_\_\_\_\_

Issued by,

  
\_\_\_\_\_  
Jack Smith, R.E.H.S.

c: Clear Heart Drilling  
489 W. College Avenue  
Santa Rosa, CA 95401

Sepich Aasoo/Methane Specialists  
580 Walnut Street  
Moorpark, CA 93021

**OFFICE USE ONLY**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



**REPICH ASSOCIATES**  
**METHANE SPECIALISTS**  
located in the Seattle area  
480 WALNUT ST, MOORPARK, CA 93021  
(818) 707-3036 FAX (818) 707-3036  
TBS (805) 662-0000 FAX (805) 662-0001

JOB NAME S14GA  
HAMILTON MCA now s

JOB No.  
J689

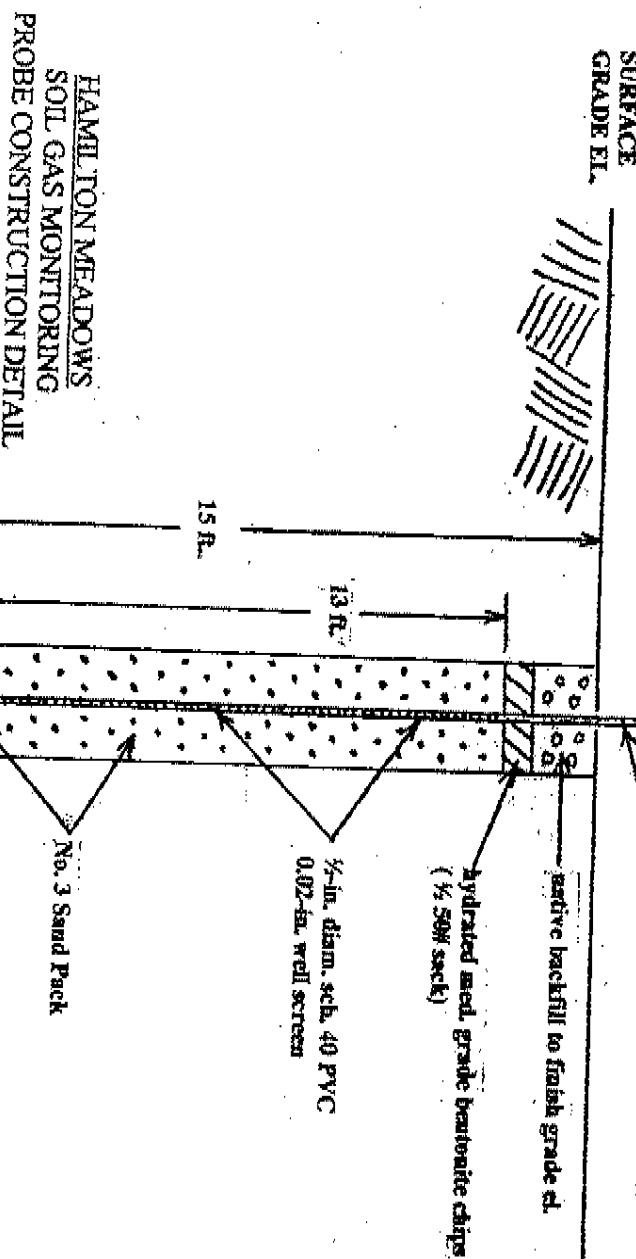
## GAS CONCENTRATIONS

~~LESS THAN 5% LEGAL  
ALLOWANCE @  $\frac{1}{2}$   
(property line)~~

SHEET 1 OF

SEPPICH ASSOCIATES, Inc. 580 WALNUT STREET MURRAY, CA. (818)707-3626 FAX (818)707-3012  
PIPELINE SPECIALISTS

J689



HAMILTON MEADOWS  
SOIL GAS MONITORING  
PROBE CONSTRUCTION DETAIL

F:\56566\exhibits\06-Landfill-02

**Carlson, Barbee, & Gibson, Inc.**2603 CAMINO RAMON, SUITE 100 SAN RAMON, CALIFORNIA 94583  
TELEPHONE (925) 866-0322 FAX: (925) 866-8575

CIVIL ENGINEERS • SURVEYORS • PLANNERS

DATE: DECEMBER 8, 2000

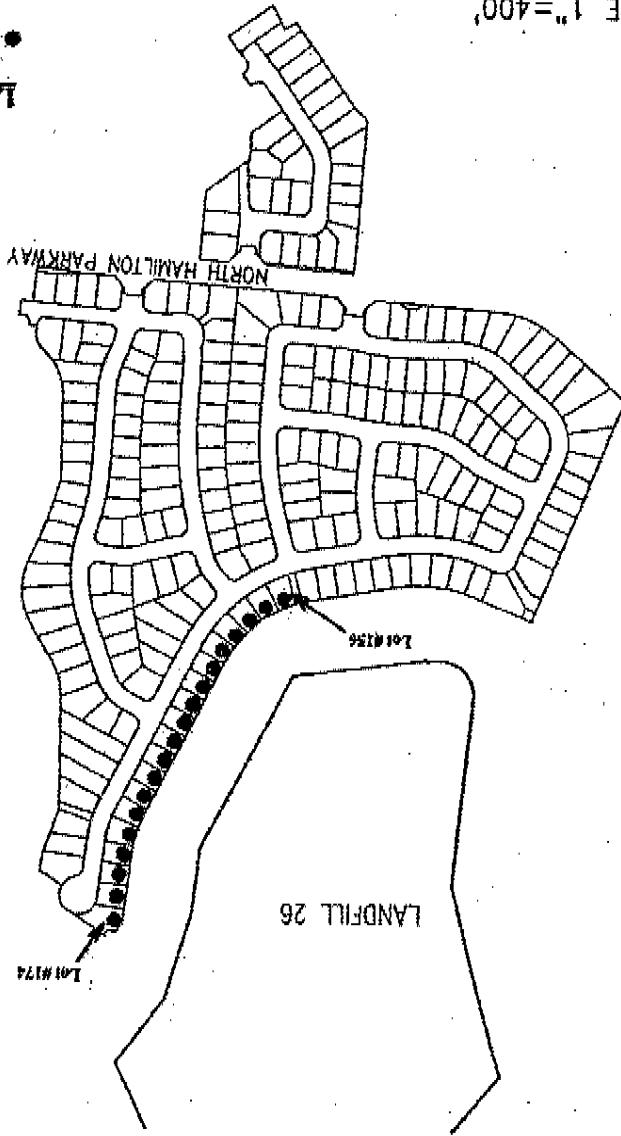
NOVATO, CALIFORNIA

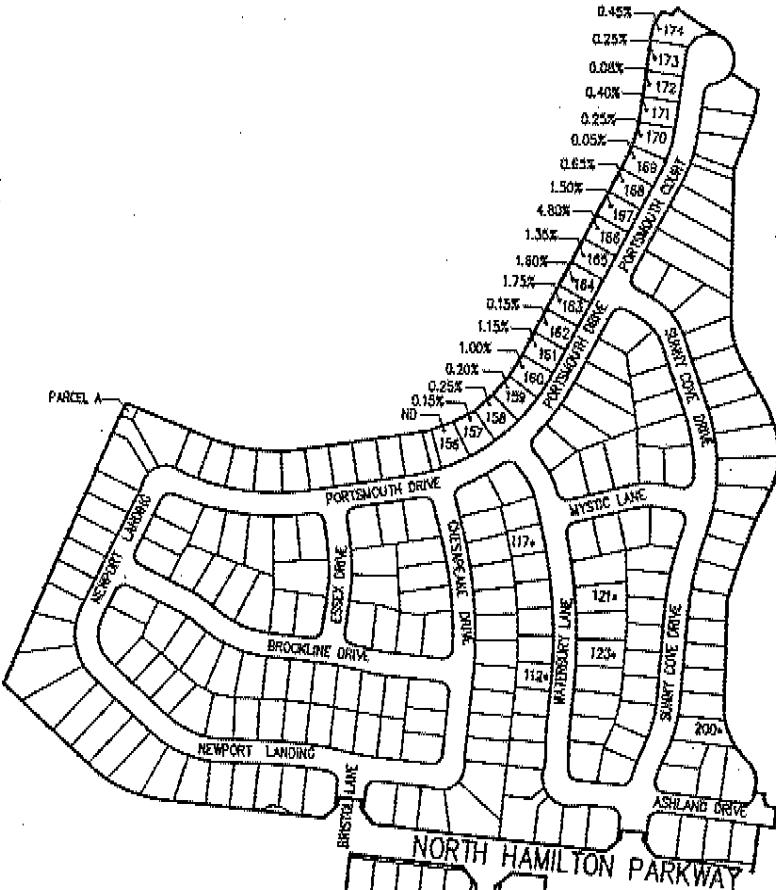
HAMILTON MEADOWS

**LANDFILL 26**

SCALE 1"=400'

• Soil Boring Locations

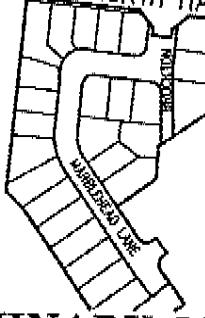
**LEGEND:**



PREVIOUS METHANE SWEEP

LOT	TEST RESULT	DATE
* 112	ND	03/01/01
* 117	ND	03/01/01
* 121	ND	03/01/01
* 123	ND	03/01/01
* 200	ND	03/01/01

ND = NO DETECT



## PRELIMINARY METHANE CONCENTRATION RESULTS

PARTS PER MILLION (PPM)

SHEA HOMES  
HAMILTON MEADOWS  
NOVATO, CALIFORNIA

DATE: MARCH 21, 2001

SCALE 1"=300'

F:\96668\exhibits\031301\eb-methane02